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中国及邻近地区线蕨属的分类研究*

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Taxonomic studies of the genus *Colysis* C. Presl (Polypodiaceae) from China and neighboring regions

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Abstract A revision is made of the genus *Colysis* from China and its adjacent regions on the basis of field studies and herbarium observations. Nine species and one hybrid are recognized based on the spore morphology, cytology and geographical distribution. *Colysis elliptica* is divided into five varieties. Scale-like sporiangial paraphyses are found in sori of *Colysis wrightii* for the first time.
Key words *Colysis*; Taxonomy; China and neighboring regions
摘要 在野外考察和植物标本研究的基础上,结合孢粉学、细胞学和植物地理学资料,对中国及邻近地区的线蕨属植物进行了修订,初步鉴定出9种和1杂种。在线蕨 *C. elliptica* 下划分出5个变种。首次发现褐叶线蕨 *Colysis wrightii* 的孢子囊中有鳞片状隔丝。
关键词 线蕨属; 分类; 中国及邻近地区

线蕨属 *Colysis* 为水龙骨科植物,是1849年由C. Presl首次建立的。主要分布在亚洲热带和亚热带,向东南至伊里安岛及澳大利亚的昆士兰。

本属植物先后被归于 *Grammitis*, *Ceterach*, *Selliguea*, *Hemionitis*, *Pleopeltis*, *Gymnogramme* 和 *Polypodium* 中。秦仁昌在1931年研究了线蕨的羽裂类型,1933年系统研究了中国及邻近地区的线蕨属植物,描述了19个种2变种和6变型,并编制了分种检索表。随后, Tardieu-Blot 和 Christensen(1941)在"Florae Generale L'Indo-Chine"中记载线蕨属植物有11种4变种1变型。Copeland(1947)讨论了本属与邻近属间的关系,认为本属与星蕨属、修蕨属、薄唇蕨属、似薄唇蕨属以及树舌蕨属有着极为密切的联系,并介绍了本属在各地区的代表种。傅书遐(1957)记载了中国产8种1变种。秦仁昌(1978)将星蕨属、线蕨属、薄唇蕨属、似薄唇蕨属以及树舌蕨属划分到星蕨亚科,认为它们是水龙骨科的一个自然类群。Tagawa(1980)描述了日本的6个种。Tu(1981)研究了越南的水龙骨科植物,记载有线蕨15种。Hetterscheid 和 Hennipmen(1984)通过对星蕨类植物的叶脉类型、孢子囊群特征和叶形的研究,将线蕨、薄唇蕨、似薄唇蕨以及树舌蕨归为一类,并认为线蕨和薄唇蕨的孢子囊群线形与主脉有一定角度到角度逐渐缩小,直到呈卤蕨形,存在着过渡。Tagawa 和 Iwatsuki(1989)在"Flora of Thailand"中记载线蕨属6个种,其中5个种在中国有分布。Hennipmen 等(1990)认为 *Colysis* 与 *Leptochilus* 及 *Microsorum* 之间

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的界限需要进一步研究。Tryon 和 Lugarden(1991)利用扫描电镜研究了部分线蕨属和薄唇蕨属植物的孢子形态，发现两属孢子表面均具刺。Bosman(1991)在其星蕨类研究的博士论文中，承认 *Microsorum* 和 *Colysis*，但她的新组合的 *Colysis insignis* 和 *Colysis pteropus*，其实都是星蕨属植物。吴兆洪和秦仁昌(1991)将具有线形孢子囊的线蕨属和修蕨属 *Selliguea* 合并为线蕨亚科 Selliguioideae。Nooteboom(1997)通过对星蕨类植物的叶脉类型和孢子囊特征的观察研究，认为线蕨属和薄唇蕨属间存在着过渡，应作同属对待，且将原来属于线蕨的种归并为 5 个种 1 个杂种及 4 个变型。

从 1933 年后不断有该属的新类群的报道，如 *C.* × *shintenensis* (Hayata)H. Ito (Ito, 1935)，*C. hokouensis* Ching(Ching, 1949)，*C. intermedia* Ching et C.H. Wang 和 *C. triphylla* Ching(Ching et Wang, 1959)，*C. diversifolia* W.M. Chu(Zhu, 1979)，*C. saxicola* H.G. Zhou et Hua Li 和 *C. sanjiangensis* H.G. Zhou et Hua Li(Zhou et Li, 1993)等等。已有文献记载的种、变型及变种名称多达 97 个，给该属的分类带来了很大困难。

本文在研究线蕨属植物标本和野外考察的基础上，结合解剖学、孢粉学、细胞学和植物地理学资料，对中国及邻近地区分布的线蕨属进行了修订。根据孢子囊群的类型不同而将线蕨和薄唇蕨分开处理，将孢子囊群为线形的归入线蕨属，将孢子囊群为卤蕨形的归入薄唇蕨属。

本研究基于秦仁昌(1978)的水龙骨科星蕨亚科的概念，认为 *Microsorum* 不同于 *Colysis* 在于前者孢子囊群圆形，而后者孢子囊群线形。但不同意秦仁昌把 *Phymatosorus* (*Phymatodes*)划归隐子蕨亚科(Crypsinoideae)的处理，而认为 Nooteboom(1997)将 *Phymatosorus* 和 *Microsorum* 做为同属处理有一定道理，或至少二者是极其近缘的。我们认为星蕨亚科 Microsoroids 应至少包括 *Microsorum*、*Colysis*、*Leptochilus*、*Phymatosorus*、*Neolepisorus*、*Neocheiropteris*、*Lepidomicrosorum* 和 *Tricholepidium* 等属。本文是我们对星蕨亚科系统学研究的第一篇论文。

线蕨属

Colysis C. Presl, Epim. Bot. 146. 1849; Ching, Bull. Fan Mem. Inst. Biol. 4: 313. 1933; C. Chr., Ind. Fil. 56. 1934; Tardieu et C. Chr. in Lecomte, Fl. Indo-Chine 7 (2): 490. 1941; Copel., Gen. Fil. 198. 1947; S.H. Fu, Ill. Import. Chin. Pl. Pterid. 230. 1957; Copel., Fern Fl. Philipp. 3: 489. 1960; Ching *et al*. in Chun *et al*., Fl. Hainan. 1: 183. 1964; Pic. Serm., Ind. Fil., Suppl. 4: 50. 1965; DeVol et C.M. Kuo in Fl. Taiwan 1: 168. 1975; Y.L. Zhang *et al*., Sporae Pterid. Sin. 348. 1976; Ching, Acta Phytotax. Sin. 16: 18. 1978; Tagawa, Col. Ill. Jap. Pterid. 161. 1980; V.G. Tu, Novosti Syst. Vyssh. Rast. 18: 29. 1981; Tagawa et K. Iwats., Fl. Thailand 3: 536. 1989; Hennipman *et al*. in Kramer et Green, Fam. Gen. Vasc. Pl. 218. 1990; S.H. Wu et Ching, Fern Fam. Gen. China 535. 1991; S.X. Xu in Fl. Jiangxi 1: 328. 1993; Shieh *et al*. in Fl. Taiwan 1: 472. 1994.

Leptochilus auct. non Kaulf.: Noot., Blumea 2: 274. 1997.

中型，土生或附生。根状茎纤细，长而横走，被鳞片；鳞片细小，质薄，卵形至披针形而

先端渐尖至尾尖，褐色，具粗筛孔，全缘或近全缘。叶远生，一形或为近二形；柄长，与根状茎相连接处的关节不明显，通常有翅；叶为单叶或指状深裂至羽状深裂，或为一回羽状而羽片的基部贴着叶轴，边缘全缘或呈浅波状。叶脉网状，侧脉通常仅下部明显，不达叶边，稍曲折，为整齐或不整齐的横脉所连接，在每对侧脉之间形成两行网眼，有单一或呈钩状的内藏小脉。叶草质或纸质，无毛。孢子囊群线形，连续或有时中断，在每对侧脉之间有1条并与侧脉平行，而与主脉斜交，大多数种类不具隔丝，但褐叶线蕨和胄叶线蕨具有明显鳞片状隔丝；孢子囊柄有3行细胞，环带由12～14个增厚细胞组成。孢子椭圆形，外壁具有较短的刺状或小颗粒状纹饰。

Typus generis（属的模式）：*Colysis hemionitidea* （Wall. ex Mett.）C. Presl[*Polypodium hemionitideum* Wall. ex Mett.]

本属12种，主产于亚洲热带和亚热带，向东南至伊里安岛及澳大利亚的昆士兰。中国有9种和1杂种，主产于西南及华南。

分种检索表

1. 叶为单叶，全缘或多少不规则的条裂。
  2. 叶片全缘或呈波状。
    3. 孢子囊群长圆形或近圆形，间断着生。
      4. 能育叶一型；叶柄长1～4 cm ………… 1. **断线蕨 C. hemionitidea** (Wall. ex Mett.)C. Presl
      4. 能育叶二型；叶柄长4～10 cm ………………………… 2. **异叶线蕨 C. diversifolia** W.M. Chu
    3. 孢子囊群线形，连续。
      5. 叶近二型…………………………………… 3. **长柄线蕨 C. pedunculata** (Hook. et Grev.)Ching
      5. 叶一型。
        6. 叶背有小鳞片，孢子囊群中有鳞片状隔丝着生……… 4. **褐叶线蕨 C. wrightii** (Hook.)Ching
        6. 叶背无小鳞片，孢子囊群中无鳞片状隔丝着生。
          7. 叶片椭圆形或卵状披针形，叶片中部以下突变狭；叶质厚，叶脉隐约可见………………………………………………………………………… 5. **矩圆线蕨 C. henryi** (Baker)Ching
          7. 叶片狭长线形，以狭翅下延达近基部；叶草质，叶脉清晰可见 ………………………………………………………………………… 6. **绿叶线蕨 C. leveillei** (Christ)Ching
  2. 叶片戟形，基部通常有不规则的条裂。
    8. 叶片阔三角状披针形或戟形，常有1～2对近平展的披针形裂片或2～6对不规则的裂片；叶纸质或草质，上面无毛，下面幼时疏被鳞片 ………………… 7. **胄叶线蕨 C. hemitoma** (Hance)Ching
    8. 叶片三角状披针形，具1～3对极不规则的裂片；叶纸质，两面均无毛 ………………………………………………………………………… 8. **新店线蕨 C. ×shintenensis** (Hayata)H. Ito
1. 叶为羽状深裂或掌状深裂。
  9. 叶为羽状分裂 ……………………………………………………… 9. **线蕨 C. elliptica** (Thunb.)Ching
  9. 叶为掌状分裂或2～3叉状 ………………………………… 10. **掌叶线蕨 C. digitata** (Baker)Ching

Key to the species

1. Fronds simple, entire or more or less irregularly laciniate.
  2. Fronds entire and slightly undulate.
    3. Sori round to elongate, interrupted.

4. Fertile leaves monomorphous, stipe 1～4 cm long .... 1. **C. hemionitidea**(Wall. ex Mett.)C. Presl

4. Fertile leaves dimorphous, stipe 4～10 cm long .... 2. **C. diversifolia** W. M. Chu

3. Sori linear, continuous.

5. Leaves dimorphous .... 3. **C. pedunculata** (Hook. et Grev.)Ching

5. Leaves monomorphous.

6. Lamina undersurface with small scales and scale-shaped soral paraphyses .... 4. **C. wrightii** (Hook.)Ching

6. Lamina undersurface without small scales and scale-shaped soral paraphyses.

7. Fronds elliptical or ovate lanceolate, lamina normally rather suddenly narrowed below the middle, thick in the context, venation indistinct .... 5. **C. henryi** (Baker)Ching

7. Fronds narrowly linear, lamina gradually decurrent nearly to the base, herbaceous, venation distinct .... 6. **C. leveillei** (Christ)Ching

2. Fronds hastate, laciniato-lobed at the lower part above the decurrent base.

8. Fronds broadly deltoid lanceolate or hastate, frequently with 1～2 pairs of lanceolate, horizontally patent lobes, or sometimes regularly lobed-laciniate with 5～6 linear-lanceolate lobes on each side, chartaceous or herbaceous, surface glabrous, undersurface with sparsely scales when young .... 7. **C. hemitoma** (Hance)Ching

8. Fronds deltoid lanceolate, with 1～3 pairs irregularly laciniate, chartaceous, glabrous on each side .... 8. **C. ×shintenensis** (Hayata)H. Ito

1. Fronds pinnatifid or digitately lobed.

9. Fronds normally pinnate or pinnatifid .... 9. **C. elliptica** (Thunb.)Ching

9. Fronds digitately lobed or sometimes 2～3 forked .... 10. **C. digitata**(Baker)Ching

1　断线蕨（中国蕨类植物图谱）

Colysis hemionitidea (Wall. ex Mett.)C. Presl, Epim. Bot. 147. 1849; C. Chr., Ind. Fil. 185. 1906; Ching, Bull. Fan Mem. Inst. Biol. 4: 320. 1933; C. Chr., Ind. Fil. 56. 1934; Ching, Ic. Fil. Sin. 4: pl. 195. 1937; H. Ito, Journ. Jap. Bot. 11: 89. 1935; Tardieu et C. Chr. in Lecomte, Fl. Indo-Chine 7(2): 494. 1941; S.H. Fu, Ill. Import. Chin. Pl. Pterid. 231, pl. 310. 1957; Copel., Fern Fl. Philipp. 3: 489. 1960; Ching *et al*. in Chun *et al*., Fl. Hainan. 1: 184. 1964; Ic. Corm. Sin. 1: 263, f. 526. 1972; DeVol et Kuo in Fl. Taiwan 1: 170, f. 58. 1975; Edie, Ferns Hong Kong 119, f. 53. 1978; Ohwi, Fl. Jap. 236. 1978; Tagawa, Col. Ill. Jap. Pterid. 162. 190, pl. 69. 1980; Kurata et Nakaike, Ill. Pterid. Jap. 2: photo 280, pl. 281. 1981; V. G. Tu, Novosti Syst. Vyssh. Rast. 18: 30. 1981; Ching et S. K. Wu in Fl. Xizang. 1: 329. 1983; C. M. Kuo, Taiwania 30: 42. 1985; K. Iwats., Himalaya Pl. 1: 335. 1988; Tagawa et K. Iwats. in Fl. Thailand 4: 536. 1989; L.K. Ling *et al*. in Fl. Fujian. 1: 240, pl. 229. 1991; Nakaike, New Fl. Jap. Pterid.(rev. et enlarg.) pl. 637. 1992; S. X. Xu in Fl. Jiangxi 1: 330, pl. 342. 1993; Shieh *et al*. in Fl. Taiwan 1: 475, f. 185. 1994.——*Polypodium hemionitideum* [Wall., Cat. 284. 1828, nom. nud.]; Mett.,

Farngatt. I. Polypodium 112. 1857.——*Selliguea hemionitidea* C. Presl, Tent. Pterid. 216, t. 9 f. 17. 1836, nom. nud.——*Drynaria hemionitidea* (Wall. ex Mett.) Sm., Journ. Bot. 4: 61. 1841, nom. nud.——*Pleopeltis hemionitidea* (Wall. ex Mett.) T. Moore, Ind. Fil. 346. 1862; Bedd., Ferns Brit. India t. 182. 1866; Ferns Brit. India Ceylon 358, f. 202. 1892.——*Microsorum hemionitideum* (Wall. ex Mett.) Copel., Univ. Calif. Publ. Bot. 16: 112. 1929.——*Leptochilus hemionitideus* (Wall. ex Mett.) Noot., Blumea 2: 285. 1997. TYPE: Nepal, Wallich 284 (holotype, K, L, P).

China(中国). **Fujian**(福建): Longyan(龙岩), W. M. Chu *et al*. 17991(PYU); Nanjing(南靖), Fujian Exped. 413; Pinghe(平和), G. S. He 469. **Guangdong**(广东): Fengchuan(封川), C. Huang 164031(IBSC, KUN); Gaoyao(高要), Y.G. Liu 1912(IBSC, PE); Heyuan(河源), Huanan Norm. Coll. Bio. Dept. Exped. 111(IBSC); Huaiji(怀集), Y.G. Liu 2853(IBSC, PE); Lechang(乐昌), C.L. Tso 20943; Lianshan(连山), P. H. Tan 58240(IBSC, KUN, PE); Longchuan(龙川), C.L. Tso 20943; Longmen(龙门), Nankun Mount. Exped. 71531(IBSC); Luoding(罗定), H.G. Ye et N. Liu 2301 (IBSC); Luofushan(罗浮山), N.K. Chun 40466(IBSC), 41294(PE); Qingyuan(清远), Y.F. Chun 30489(IBSC); Shenzhen(深圳), Shenzhen Exped. 790; Shixing(始兴), X. W. Wang 746(IBSC); Wengyuan(翁源), S.K. Lau 878; Xinfeng(新丰), H.G. Ye 985 (IBSC); Xinxing(新兴), Y.G. Liu 2135(IBSC, PE); Xinyi(信宜), S.P. Ko 51262(IBSC, KUN, PE); Yangchun(阳春), H.G. Ye et N. Liu 355(IBSC); Yingde(英德), H. Y. Liang 61296(PE, SZ), C. Wang 163728(IBSC, KUN). **Guangxi**(广西): Baise(百色), S. China Exped. 2213(IBSC, PE); Fusui(扶绥), H.S. Chun 12026(IBSC, KUN); Guanyang(灌阳), G. S. Zhou 346(IBSC); Hexian(贺县), H. G. Zhou 3560(GXAU); Huanjiang(环江), Beijing Exped. 594517; Jiuwanshan(九万山), S. Q. Chen 15682 (KUN); Lingyun(凌云), S. China Exped. 1475(IBSC, PE); Longsheng(龙胜), Longsheng Exped. 50381(IBSC, PE); Luocheng(罗城), Beijing Exped. 894681; Mengshan(蒙山), J. X. Zhong 85067; Napo(那坡), H.G. Zhou 2118(GXAU); Rongshui(融水), H. G. Zhou 3357(GXAU); Sanjiang(三江), H. G. Zhou 1904(GXAU); Shanglin(上林), Shanglin Exped. 2-0071(GXMI); Shangsi(上思), H. G. Zhou 2410(GXAU); Wuming (武鸣), S.S. Sin 25198(IBSC); Xinan(兴安), Xingan Exped. 169(IBSC); Xiuren(修仁), C. Wang 40518(IBSC); Yangshuo(阳朔), Y. Wan 45954(GXMI); Yaoshan(瑶山), Sin 104B; Yongning(邕宁), C.C. Chang 14313(IBSC); Yulin(玉林), H.G. Zhou 3447(GXAU). **Guizhou**(贵州): Liping(黎平), Fern Exped. 91674(PYU); Rongjiang(榕江), Qiannan Exped. 3432(KUN). **Hainan**(海南): Baisha(白沙), E. Hainan Exped. 553(IBSC, PE), C. Wang 34473; Baoting(保亭), W.M. Chu *et al*. 18179(PYU); Diaoluoshan(吊罗山), Hainan Exped. 1991(PE, PYU); Qiongzhong(琼中), S.H. Chun 10697(IBSC, KUN). **Jiangxi**(江西): Quannan(全南), J. F. Cheng 64436(PYU). **Sichuan**(四川): Junlian(筠连), S.H. Kung 5235(PE); Qianwei(犍为), K.H. Shing et Q. Xia 5232(PE). **Taiwan**(台湾): Faurie 8449, 8450(PE); Suzuki 18833(PE); M.

Tagawa 3408(PE). **Xizang**(西藏): Medôg(墨脱), W.L. Chen 10965, 14298(PE), S.Z. Cheng *et al*. 1710, 3866, 4879(PE), Qinghai-Xizang Veget. Exped. 2837(PE). **Yunnan**(云南): Cangyuan(沧源), W.M. Chu *et al*. 15443(PYU); Eshan(峨山), Eshan Exped. 88-324(KUN); Fugong(福贡), W.M. Chu 11490(PE); Gongshan(贡山), Qinghai-Xizang Exped. 9135(KUN, PE); Jingdong(景东), T.T. Yu 20443(KUN); Jinping(金平), Sino-Russia Yunnan Exped. 888(PE); Jinghong(景洪), Sino-Russia Yunnan Exped. 5601(PE); Luoping(罗平), W.M. Chu *et al*. 13256(PYU); Maguan(马关), Z.R. Wang 812(PE); Malipo(麻栗坡), K.M. Feng 13892(PE); Menghai(勐海), W.M. Chu et S.G. Lu 15756(PYU); Pingbian(屏边), H.T. Tsai 61614(KUN); Xichou(西畴), W.M. Chu *et al*. 21817(PYU); Xishuangbanna(西双版纳), Sino-Russian Yunnan Exped. 5601(KUN); Yanshan(砚山), W.M. Chu *et al*. 18574(PYU); Yingjiang(盈江), W. Yunnan Exped. 10769(PE); Yongde(永德), W.M. Chu *et al*. 15084(PYU).

Japan(日本): Kagoshima, S. Mitsuta *et al*. 47(PYU); Kyushu, Miyoshi Furuse 10469, 11917(PE), S. Mitsuta *et al*. 200(PYU); Nakabashi, T. Harada *et al*. sine num. (PE); Amami-Ohshima, Y. Saiki 2966(PYU).

尼泊尔、印度、泰国、不丹、缅甸、越南和菲律宾也有分布。生于海拔 300～2000 m 的溪边或林下岩石上。模式标本产自尼泊尔。

2　异叶线蕨（云南植物研究）

Colysis diversifolia W.M. Chu, Acta Bot. Yunnan. 2: 93, pl. 1, 1979, "W.M. Zhu"; R.J. Johns, Ind. Fil. Suppl. 6: 83. 1996. TYPE: China. Yunnan austr.-orient., Maguan Xian, Gulingqing, Pogang, alt. 1100m, in sylvis humidis ad ripas rivulorum in valle, rero, 27-Ⅰ-1978, W.M. Zhu 8425(holotype, HGUY; isotype, KUN, PE).

Colysis × *beddomei* Manickam et Irudayaraj, Taxon 46: 267. 1997. TYPE: Beddome 667(K, n. v.).

Yunnan(云南): Maguan(马关), W.M. Chu 8425(PYU, PE), W.M. Chu *et al*. 23483, 29268(PYU), Z.R. Wang 812(PE), S.K. Wu *et al*. 1985(KUN).

产于云南马关古林箐。生于海拔 800～1200 m 的林下。模式标本采自云南马关古林箐坡岗村。

本种的能育叶二型，不狭缩的能育叶及不育叶叶形极似 *Colysis hemionitidea*，有时与星蕨属的种如 *Microsorum pteropus* 也容易混淆，狭缩的能育叶的外形极似 *Leptochilus decurrens*。朱维明(1979)认为本种的孢子形态与 *Colysis hemionitidea* 不同，而与 *Colysis hemitoma* 相似。经扫描电镜观察(L. Shi et X.C. Zhang , 1999, in press)，证实本种的孢子形态与 *Colysis hemionitidea* 相同，孢子周壁具有尖刺状纹饰，且发育正常的孢子极少，有可能是 *Colysis hemionitidea* 和 *Leptochilus decurrens* 的杂交种，需做进一步细胞学研究。

3　长柄线蕨（植物分类学报）

Colysis pedunculata (Hook. et Grev.) Ching, Bull. Fan Mem. Inst. Biol. 4: 321. 1933; Tardieu et C. Chr. in Lecomte, Fl. Indo-Chine 7(2): 494. 1941; Holttum, Rev.

Fl. Malaya 2: 160, pl. 71. 1954; Rev. Fl. Malaya 2nd ed. 160. 1966; Ching et Y.X. Lin, Acta Phytotax. Sin. 5: 407. 1984; K. Iwats., Himalaya Pl. 1: 335. 1988; Tagawa et K. Iwats. in Fl. Thailand 4: 538. 1989.——*Ceterach pedunculatum* Hook. et Grev., Ic. Fil. t. 5. 1827; C. Chr., Ind. Fil. 552. 1906.——[*Grammitis hamiltoniana* Wall., Cat. 9. 1828. num. nud.]——*Selliguea hamiltoni* C. Presl, Tent. Pterid. 216. 1836; Bedd., Ferns Brit. India t. 239. 1867; Ferns Brit. India Ceylon 390, f. 226. 1892. ——*Gymnogramma hamiltoniana* (C. Presl)Hook., Sp. Fil. 5: 161. 1864; Hook. et Baker, Syn. Fil. 389. 1868. ——*Selliguea pedunculata* (Hook. et Grev.)C. Presl, Epim. Bot. 146. 1851; Mett., Farngatt. Ⅰ. Polypodium 112. 1857. ——*Polypodium pedunculatum* (Hook. et Grev.)Mett., Farngatt. Ⅰ. Polypodium 112. 1857; C. Chr., Ind. Fil. Suppl. 126. 1913. ——*Pleopeltis pedunculata* (Hook. et Grev.)Alderw., Malayan Ferns Suppl. 1: 405. 1917. —— *Leptochilus macrophyllus* var. *pedunculatus* (Hook. et Grev.)Noot., Blumea 2: 290. 1997. TYPE: India orientalis, Syhlet, Wallich 9(holotype, K).

Grammitis membranacea Blume, Enum. Pl. Jav. 118. 1828. ——*Selliguea membraceae* (Blume)Blume, Fl. Jav. Fil. 123, t. 52, f. 2. 1830. ——*Colysis membranacea* (Blume)C. Presl, Epim. Bot. 147. 1849; Copel., Fern Fl. Philipp. 3: 490. 1960; Y.X. Lin, Acta Phytotax. Sin. 5: 475, f. 1: 2. 1993. ——*Polypodium selliguea* Mett., Farngatt. Polypodium 214: 111. 1857; Y.C. Wu, Bull. Dept. Biol. Sun Yatsen Univ. 3: 314, pl. 148. 1932. ——*Gymnogramme selliguea* (Mett.)Hook., Hook. et Baker, Syn. Fil. 388. 1864.—— *Colysis selliguea* (Mett.)Ching, Sunyatsenia 5: 261. 1940; Pic. Serm., Ind. Fil. Suppl. 50. 1965. TYPE: Java, Salak, Blume(L908.286-58).

Colysis intermedia Ching et C. H. Wang, Acta Phytotax. Sin. 2: 155, pl. 23, f. 30. 1959; Ching *et al*. in Chun *et al*., Fl. Hainan. 1: 184. 1964; Pic. Serm., Ind. Fil. Suppl. 50. 1965. TYPE: China. Hainan, Danxian, W. Hainan Exped. 236(n. v.).

Colysis bonii Ching, Bull. Fan Mem. Inst. Biol. 4: 322. 1933; Ic. Fil. Sin. 2: 90, pl. 90. 1934; C. Chr., Ind. Fil. 56. 1934; Tardieu et C. Chr. in Lecomte, Fl. Indo-Chine 7(2): 492, f. 58. 1941; Ching *et al*. in Chun *et al*., Fl. Hainan 1: 184. 1964; V. G. Tu, Novosti Syst. Vyssh. Rast. 18: 29. 1981. ——*Polypodium bonii* (Ching)Christ in C. Chr. Ind. Fil. Suppl. 3: 145. 1934. TYPE: Vietnam. Tonkin occid, Bon 2395 (holotype, BM, P, PE).

Polypodium fluviatile Lauterb., Bot. Jahrb. Syst. 44: 507. 1910; C. Chr., Ind. Fil. Suppl. 59. 1913. ——*Pleopeltis fluviatilis* (Lauterb.)Alderw., Malayan Ferns Suppl. 1: 403. 1917. ——*Colysis fluviatila* (Lauterb.)Ching, Bull. Fan Mem. Inst. Biol. 4: 319. 1933; C. Chr., Ind. Fil. 56. 1934; Steenis, Rheophyt. of the World 157. 1981; M. Kato, Journ. Fac. Sci. Univ. Tokyo sect. 3 Bot. 15: 104. 1991. —— *Leptochilus macrophyllus* var. *fluviatilis* (Lauterb.)Noot., Blumea 2: 289. 1997. TYPE: East Borneo, Winkler 2830(BM, K, L).

Polypodium(*Selliguea*) *sp*. *n*., C. Chr. in Wu, Bull. Dept. Biol. Sun Yatsen Univ. 3: 318, pl. 150. 1932. ——*Polypodium wui* C. Chr., Bull. Dept. Biol. Sun Yatsen Univ. 6: 17, pl. 150. 1933; C. Chr., Ind. Fil. Suppl. 3: 161. 1934. ——*Colysis wui* (C. Chr.) Ching, Bull. Fan Mem. Inst. Biol. 4: 322. 1933; C. Chr., Ind. Fil. 56. 1934; Ching, Ic. Fil. Sin. 4: 194, pl. 194. 1937; Tardieu et C. Chr. in Lecomte, Fl. Indo-Chine 7(2): 494. 1941; V. G. Tu, Novosti Syst. Vyssh. Rast. 18: 31. 1981; Tagawa et K. Iwats., Fl. Thailand 4: 539, f. 54. 1989. TYPE: China. Guangxi, Yaoshan, Sheng-tang Ling, 16-Ⅵ-1928, S. S. Sin et K. K. Wang 513(isotype, PE).

Colysis saxicola H. G. Zhou et Hua Li, Acta Bot. Yunnan. 3: 253, pl. 1. 1993, "H. G. Zhou et H. Li". TYPE: China. Guangxi, Napo Xian, Nonghua, in evergreen broadleaf forest of limestone area, 19～20-Ⅹ-1990, H. G. Zhou 2605(holotype, GXAU, isotype, PYU).

China(中国). **Guangxi**(广西): Beiliu(北流), Longnan Hos. Exped. 69201(GXMI); Fangcheng(防城), H. G. Zhou 3779(GXAU); Longzhou(龙州), F. S. Huang 21561(GXMI); Napo(那坡), S. China 706(IBSC); Shangsi(上思), W. T. Tsang 22661(IBSC); Yaoshan(瑶山), Sin et Wang 513(PE), Yaoshan Coplex Exped. 11929(IBSC). **Hainan** (海南): Baoting 保亭), F. C. How 71816(PE); Danxian(儋县), C. Wang 34467(PE, SZ); Dingan(定安), H. Y. Liang 64351(PE); Lingao(临高), E. Smith 1516(PE); Lingshui(陵水), H. Fung 20112(PE); Qiongzhong(琼中), 236-6 Exped. 1709(PE); W. Hainan Exped. 347(PE); C. L. Tso et N. K. Chun 43945(PE). **Yunnan**(云南): Jinping (金平), Sino-Russian Yunnan Exped. 229(KUN); Xishuangbanna(西双版纳), W. M. Chu 2085(WPS), Y. H. Li 4468(KUN); Yingjiang(盈江), W. Yunnan Bot. Exped. 10673(PE).

Vietnam(越南): Liangshan, Sino-Vietnam Exped. 1425(KUN, PE); Tokin, Bon 2395(PE).

Sikkim(锡金): Lopchos, J. C. McDonell(photo, PE).

生长在密林下溪边的潮湿岩石上。印度、爪哇、印度尼西亚、马来西亚和泰国也有分布。模式标本采自印度。

本种叶形变化很大。在线蕨属中,本种的孢子囊群类型最接近薄唇蕨属 *Leptochilus*。它的孢子囊群依然是分离的,只是孢子囊群斜展的角度很小,与薄唇蕨属满布于叶背的孢子囊群截然不同。因此,不同意 Nooteboom(1997)的观点,根据孢子囊群的线蕨形和卤蕨形将线蕨属和薄唇蕨属分开。

4　褐叶线蕨(中国高等植物图鉴)

Colysis wrightii (Hook. et Baker) Ching, Bull. Fan Mem. Ins. Biol. 4: 324. 1933; C. Chr., Ind. Fil. 56. 1934; H. Ito, Journ. Jap. Bot. 11: 90. 1935; Ching, Ic. Fil. Sin. 4: 196, pl. 196. 1937; H. Ito, Bot. Mag. Tokyo 53: 68. 1939; Tardieu et C. Chr. In Lecomte, Fl. Indo-Chine 7(2): 495. 1941; H. Ito, Fil. Jap. Illust. Tokyo 415. 1944; S. H. Fu, Ill. Import. Chin. Pl. Pterid. 232, pl. 311. 1957; Ic. Corm. Sin. 1: 264, f.

527. 1972; DeVol et Kuo in Fl. Taiwan 1: 172. 1975; Walker, Fl. Okinawa S. Ryuku Isl. 117. 1976; Edie, Ferns Hong Kong 118, f. 52. 1978; Ohwi, Fl. Jap. 235. 1978; Tagawa, Col. Ill. Jap. Pterid. 162. 190, pl. 69. 1980; Kurata et Nakaike, Ill. Pterid. Jap. 2: 290, photo 290, pl. 291. 1981; V.G. Tu, Novosti Syst. Vyssh. Rast. 18: 31. 1981; Fl. Fujian. 1: 240, pl. 228. 1982; C.M. Kuo, Taiwan. 30: 42. 1985; Nakato, Journ. Jap. Bot. 65: 204. 1990; Nakaike, New Fl. Jap. Pterid. (rev. et enlarg.) 640, pl. 640. 1992; S.X. Xu in Fl. Jiangxi 1: 329, pl. 341. 1993; Shieh *et al*. in Fl. Taiwan 1: 477. 1994. ——*Gymnogramme wrightii* Hook. et Baker, Syn. Fil. 388. 1867; Hook., Sp. Fil. 5: 160, t. 303. 1899. ——*Selliguea wrightii* (Hook. et Baker) Sm., Hist. Fil. 102. 1875. ——*Polypodium wrightii* (Hook. et Baker) Mett. in Engl. et Prantl, Nat. Pflanzenfam. 1 (4): 316. 1899. —— *Leptochilus macrophyllus* var. *wrightii* (Hook. et Baker) Noot., Blumea 2: 291. 1997. TYPE: China. Taiwan, Loochoo, Wilford, C. sine num. (n. v.).

Colysis wrightii f. *laciniata* Kurata, Journ. Geobot. 2: 41. 1963. ——*Colysis wrightii* monstr. *laciniata* (Kurata) Nakaike, Enum. Pterid. Jap. 326. 1975. TYPE: Japan. Kyushu, Onoaida, Yaku-island, Prov. Ohsumi, Dec. 1961, Y. Tabara (in Herb. Fac. Agr. Univ. Tokyo).

Colysis hokouensis Ching, Bull. Fan Mem. Inst. Biol. 3: 284. 1949; Pic. Serm., Ind. Fil. Suppl. 50. 1965; V.G. Tu, Novosti Syst. Vyssh. Rast. 18: 30. 1981. TYPE: China. S. E. Yunnan, Hekou, opposite Laokai in Tonkin, T. T. Yu 1044 (holotype, HGUY).

Colysis longifrons Tagawa, Journ. Jap. Bot. 2: 110. 1938; Bot. Mag. Tokyo 53: 68. 1939; Pic. Serm., Ind. Fil. Suppl. 50. 1965. TYPE: Japan. Ryukyu Isl. Okinawa, Mt. Nakosi, Haneti-mura, 10-Ⅹ-1937, Kanasiro 58(in Herb. Kyoto Imp. Univ.).

Colysis megalolepis Tagawa, Journ. Jap. Bot. 12: 492. 1936; H. Ito, Bot. Mag. Tokyo 53: 68. 1939; Pic. Serm., Ind. Fil. Suppl. 50. 1965. TYPE: Japan. Ryukyu, Mt. Onna, Kunzyan-gun, Isl. Okinawa, Koidzumi(Herb. Kyoto Imp. Univ.)

Colysis subsessilifolia Ching, Wuyi Sci. Journ. 1:11. 1981; R.J. Johns, Ind. Fil., Suppl. 6:83. 1996. TYPE: China. Fujian, Taining Xian, M.S. Li 558(holotype, PE).

China(中国). **Fujian**(福建): Nanjing(南靖), Fujian Exped. 428(PE), Xiamen Univ. Exped. 567(PE); Sanming(三明), W.M. Chu *et al*. 17933(WPS); Taining(泰宁), M.S. Li 558, 572(PE). **Guangdong**(广东): Fengkai(封开), Guangdong Exped. 74-4629 (IBSC); Gaoyao(高要), S. Wang 162332(IBSC); Lianshan(连山), P.H. Tan 58237(IBSC, PE); Pingyuan(平远), L. Tang 4037(IBSC); Qingyuan(清远), C. Wang 30517 (PE); Shixing(始兴), H.G. Ye et F.W. Xing 1149(IBSC); Taishan(台山), C.L. Tso 23523(PE); Xinfeng(新丰), Guangdong Exped. 77-5514(IBSC); Yangjiang(阳江), K. K. Tsoong 4843(PE); Yingde(英德), C. Wang 163749(IBSC, KUN), P.X. Xu 821 (PE). **Guangxi**(广西): Fangcheng(防城), H.G. Zhou 3781(GXAU); Fusui(扶绥), S.

H. Chun 12111(IBSC); Guiping(桂平), H.G. Zhou et H. Li 885(GXAU); Lingui(临桂), L.Q. Chen 10192(PE); Longan(隆安), H.G. Zhou 2707(GXAU); Longzhou(龙州), S.P. Ko 55335(IBSC); Mengshan(蒙山), G.S. Zhou 407(IBSC); Nanning(南宁), H.G. Zhou et H. Li 525(GXAU, PYU); Sanjiang(三江), H.G. Zhou 1879(GXAU); Shanglin(上林), Y. Wan 67136(GXMI); Shangsi(上思), H.G. Zhou 2435(GXAU); Wuming(武鸣), P.H. Chiu 4958(PE); Yangshuo(阳朔), Z.Z. Chen 53374(KUN); Yaoshan(瑶山), S.S. Sin 23419(IBSC, PE); Yongning(邕宁), Y. Wan 17611(GXMI). **HongKong**(香港): T. J. Li 001(PE). **Jiangxi**(江西): Anyuan(安远), J. F. Cheng 63003(PYU); Longnan(龙南), 236 Exped. 1295, 1300(PE); Xunwu(寻乌), Jiangxi Univ. Exped. 12336(PE). **Taiwan**(台湾): Nantou(南投), C.E.D. 7273(PE); Taibei(台北), K. Samada sine num.(IBSC), S. Tanuka 312(PE), 10889(KUN), Y. Yamamoto sine num.(IBSC). **Yunnan**(云南): Hekou(河口), K.H. Cai 323(PE), Sino-Russia Yunnan Exped. 4058(KUN, PE), Yunnan Univ. Bio. Exped. 1017(PE, PYU), W.M. Chu 5757(PE, PYU).

Vietnam(越南): Yongfusheng, Sino-Vietnam Exped. 2204(PE); Shanxisheng, Sino-Vietnam Exped 962(KUN, PE); Tokin, W. T. Tsang 29167(IBSC); Liangshan, Sino-Vietnam Exped. 1580(KUN).

Japan(日本): Kagoshima, S. Mitsuta *et al*. 133(PYU); Kyushu, M. Kido 5784(PE); S. Kurata et T. Nakaike 2048(PE); Ryukyu, K. Iwatsuki 4924(IBSC, PYU), Miyoshi Furuse 2880, 3791, 4744, 5155(PE), Y. Saiki 2283(PE).

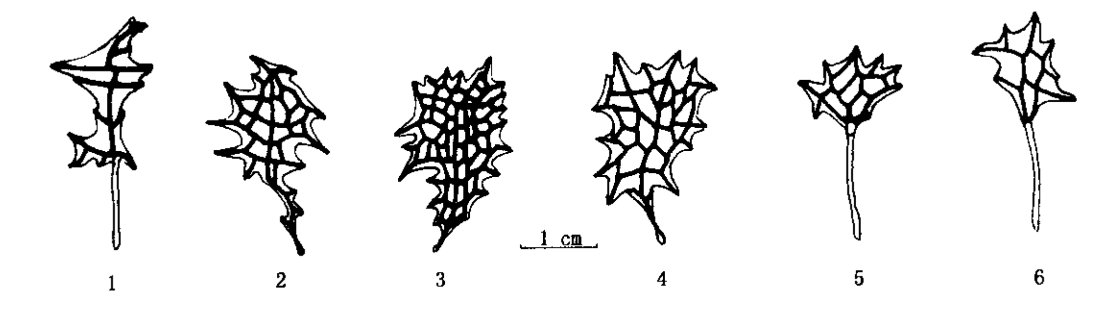


图 1 孢子囊上鳞片状隔丝 1～3. 褐叶线蕨; 4～6. 胄叶线蕨
Fig. 1 Sporangial paraphyses 1～3. *Colysis wrightii* (Hook.)Ching; 4～6. *Colysis hemitoma* (Hance)Ching (1: 236 Exped. 1300; 2,3: 236 Exped. 1295; 4,5: Y. Ling 3191; 6: W.B. Yang *et al*. 2429).

土生或附生于阴湿环境,海拔 150～1000 m。模式标本产自台湾。

经过仔细研究标本,发现此种叶背疏被小鳞片,且均具有明显的孢子囊隔丝(图 1: 1～3),为鳞片状,柄细长或近无,具粗筛孔,易与矩圆线蕨 *C. henryi* 和绿叶线蕨 *C. leveillei* 分开。河口线蕨 *C. hokouensis* 虽然叶形较宽,叶脉明显,但也具有明显的鳞片状隔丝,与之归并。线蕨中孢子囊隔丝的发现,说明了其与水龙骨科星蕨亚科中其它属的密切关系。

5 矩圆线蕨（中国高等植物图鉴）

Colysis henryi (Baker)Ching, Bull. Fan Mem. Inst. Biol. 4: 325. 1933; C. Chr., Ind. Fil. 56. 1934; S.H. Fu, Ill. Import. Chin. Pl. Pterid. 231. 1957; S.H. Fu, Ill. Import. Chin. Pl. Pterid. 1: 264, f. 528. 1972; Fl. Jiangsu 76. 1977; R.J. Chen, Fl. Anhui 1: 203, pl. 214. 1985; S. X. Xu in Fl. Jiangxi 1: 329, pl. 340. 1993.——*Gymnogramma henryi* Baker, Journ. Bot. 171. 1887.——*Selliguea henryi* (Baker) Christ, Bull. Herb. Boissier 6: 879. 1898; Bull. Soc. Bot. France 52, Mem. 1: 25. 1905.——*Polypodium henryi* (Baker)C. Chr., Ind. Fil. 532. 1906; Ind. Fil. Suppl. 150. 1934.——*Colysis wrightii* var. *henryi* (Baker)Tagawa, Tagawa, Col. Ill. Jap. Pteid. 190. 1980. TYPE: China. Hubei, Nanto, Henry 2114(holotype, K; isotype, P).

Colysis liouii Ching in Fl. Fujian. 1: 239, pl. 227. 1991; R.J. Johns, Ind. Fil., Suppl. 6: 83. 1996. TYPE: China. Fujian, Jianou, T.J. Liu 205(PE).

China(中国). **Fujian**(福建): Jianou(建瓯), T.J. Liu 205(PE). **Guangxi**(广西): Hexian(贺县), Dagui Mt. Med. Pl. Exped. 68043(GXMI); Napo(那坡), S. China Exped. 1045(IBSC, PE), H.G. Zhou 2630(GXAU, PYU). **Guizhou**(贵州): Anshun(安顺), P.S. Wang 75601(PYU, WPS), 75759(PE); Ceheng(册亨), Z.Y. Cao 509(PE); Chishui(赤水), P.S. Wang 77792(PYU); Libo(荔波), H.Y. Hou 2053(PE); Liuzhi(六枝), Y. Tsiang 9478(PE); Wengan(翁安), Libo Exped. 1877(PE); Xifeng(息烽), P.S. Wang 75551(PE, WPS); Yanhe(沿河), N. Guizhou Exped. 2241(PE); Ziyun(紫云), P.S. Wang 75672(WPS); Zunyi(遵义), Sichuan-Guizhou Exped. 1559(PE). **Hubei**(湖北): Badong(巴东), G.H. Yang 65617(PE); Enshi(恩施), H.C. Chow 1969(PE); Xianfeng(咸丰), H.J. Li 9440(IBSC, PE). **Hunan**(湖南): Dongan(东安), Y. Liu 700 (PE); Fenghuang(凤凰), Wuling Exped. 1256(IBSC); Sangzhi(桑植), Hunan Exped. 961(IBSC); Yuanling(沅陵), S.F. Wu 5174A(WPS). **Jiangxi**(江西): Anfu(安福), J. S. Yue *et al*. 3300(PE); Guixi(贵溪), P.X. Tan et S.K. Lai 4029(PE); Lushan(庐山), M.X. Nie *et al*. 9025(KUN), P.X. Qiu 3361(PE); Suichuan(遂川), 236 Exped. 504(PE); Zixi(资溪), P.X. Tan et S.K. Lai 3109(KUN, PE); **Shaanxi**(陕西): Pingli (平利), G.Y. Bai 44(PE). **Sichuan**(四川): Chengkou(城口), T.L. Dai 102799(PE); Chongqing(重庆), Z.S. Diao 562(PE); Dujiangyan(都江堰), W.P. Fang 13134(PE, SZ), K.H. Shing et Q. Xia 5073(PE); Emeishan(峨眉山), K.H. Shing et K.Y. Lang 957(PE), G.H. Yang 56187(IBSC, KUN, PE); Hongya(洪雅), W.P. Fang 7956(PE); Luxian(泸县), W.P. Fang 9831(PE); Nanchuan(南川), Z.Y. Liu *et al*. 93361(PE); Yaan(雅安), H.C. Chow 164(PE); Youyang(酉阳), Z.Y. Liu *et al*. 7079(PYU); Yuexi(越西), Chuanjingliang Exped. 3772(PE). **Yunnan**(云南): Guangnan(广南), W. M. Chu *et al*. 12887(PYU); Malipo(麻栗坡), C.W. Wang 87027(KUN, PE); Mengzi (蒙自), W. Hancock 50(PE); Pingbian(屏边), W.M. Chu 4073(PYU); Suijiang(绥江), W.M. Chu 4792(PE, PYU); Xichou(西畴), W.M. Chu 8150(PYU), Z.R. Wang 632(PE); Yingjiang(盈江), Ching 50295(PE). **Zhejiang**(浙江): Hangzhou(杭州), P.S.

Chiu 133(PE); Kaihua(开化), sine coll. 30016(PE).

生于林下或阴湿处,成片聚生,海拔600～1260 m。模式标本采自湖北。

6　绿叶线蕨（中国高等植物图鉴）

Colysis leveillei (Christ)Ching, Bull. Fan Mem. Inst. Biol. 4: 323. 1933; C. Chr., Ind. Fil. 56. 1934; S.H. Fu, Ill. import. Chin. Pl. Pterid. 231. 1957; Ic. Corm. Sin. 1: 264. 1972; L.K. Ling *et al*. in Fl. Fujian. 1: 240. 1991; S.X. Xu in Fl. Jiangxi 1: 330. 1993. ——*Selliguea leveillei* Christ, Bull. Acad. Int. Geogr. Bot. 236. 1906.——*Polypodium leveillei* (Christ)C. Chr., Ind. Fil. Suppl. 60. 1913; Hu et Ching, Ic. Fil. Sin. t. 46, 1930.; Y.C. Wu, Bull. Dept. Biol. Sun Yatsen Univ. 3: 308, pl. 145, 1932. TYPE: China. Guizhou, Tian-sheng qiao, Cavalerie 1916(holotype, BM, K, P).

Colysis leveillei f. *major* (C. Chr.) Ching, Bull. Fan Mem. Inst. Biol. 4: 324. 1933.——*Polypodium leveille* var. *major* C. Chr. ex Y.C. Wu, Bull. Dept. Biol. Sun Yatsen Univ. 3: 312, pl. 147, 1932. TYPE: China. Guangxi, Yaoshan, Sin et Wang 1510(holotype, PE).

Polypodium leveille f. *angusta* C.Chr., Y.C. Wu, Bull. Dept. Biol. Sun Yatsen Univ. 3: 310, pl. 146, 1932. ——*Colysis leveillei* f. *angusta* (C.Chr.)Ching, Bull. Fan Mem. Inst. Biol. 4: 324. 1933. TYPE: China. Guangxi, Yaoshan, Sin et Wang 6A(holotype, PE).

China(中国). **Fujian**(福建): Nanjing(南靖), Fujian Exped. 416, 518(PE), Xiamen Univ. Exped. 1278(KUN, PE). **Guangdong**(广东): Xinxing(新兴), Y.G. Liu 2165(IBSC); Shaoguan(韶关), S.S. Sin 9045(IBSC). **Guangxi**(广西): Beiliu(北流), H.G. Zhou 3131(GXAU); Guiping(桂平), H. Li et H.G. Zhou 911(GXAU, PYU); Hexian (贺县), W.T. Tsang 23071(IBSC); Lingchuan(灵川), J.X. Zhong 808038(IBSC, PE); Lingui(临桂), C.F. Liang 31619; Lipu(荔浦), Xingping Exped. 6-5503(GXMI); Longlin(隆林), C.F. Liang et D.L. Wu 31982(IBSC); Mengshan(蒙山), G.S. Zhou 409(IBSC); Napo(那坡), S. China Exped. 152(IBSC, PE); Pingnan(平南), C. Wang 40370; Shangsi(上思), W.T. Tsang 24789(IBSC); Tianlin(田林), Hongshuihe Bot. Exped. 208(PE); Xilin(西林), Hongshuihe Bot. Exped. 1247(PE); Xingan(兴安), J.X. Zhong 81813(PE); Yangshuo(阳朔), Y. Wan et D.Y. Zhu 45955(GXMI); Yaoshan(瑶山), S.S. Sin et Wang 6, 6A(PE), Zhongshan Univ. Exped. 23630(IBSC, PE); Yongfu (永福), Chaoyang Exped. 6-318(GXMI). **Guizhou**(贵州): Anlong(安龙), P.S. Wang 76307(PYU, WPS); Dushan(独山), X.Z. Yang *et al*. 64(WPS); Libo(荔波), J.Y. Han et L.L. Zeng 90372(WPS); Pingtang(平塘), H.Y. Hou 1831(PE); Wangmo(望谟), Guizhou Exped. 1553(KUN, PE), F. Wang et J. H. Huang 165(PYU, WPS); Zhenfeng(贞丰), S.W. Teng 90873(IBSC).

生于荫湿的林下,海拔450～1250 m。模式标本采自贵州惠水天生桥。

本种叶形与 *C. wrightii* 极其相似,但无孢子囊隔丝。

7　胄叶线蕨（中国蕨类植物图谱）

Colysis hemitoma (Hance) Ching, Bull. Fan Mem. Inst. Biol. 4: 326. 1933; C. Chr., Ind. Fil. 56. 1934; Ching, Ic. Fil. Sin. 4: 197, pl. 197. 1937; S.H. Fu, Ill. import. Chin. Pl. Pterid. 233, pl. 312. 1957; Ic. Corm. Sin. 1: 265, f. 529. 1972; Y.L. Zhang *et al.*, Sporae Pterid. Sin. 349, f. 75, t. 23. 27~28. 1976; L.K. Ling *et al.* in Fl. Fujian. 1: 241, pl. 230. 1991; S.X. Xu in Fl. Jiangxi 1: 331, pl. 343. 1993. —— *Polypodium hemitomum* Hance, Journ. Bot. 269. 1883; C. Chr., Ind. Fil. 532. 1906; C. Chr., Ind. Fil. Suppl. 150. 1934. —— *Leptochilus* × *hemitomus* (Hance) Noot., Blumea 2: 293. 1997. TYPE: China. Guangdong, Lienchow, Henry 22104 (holotype, BM).

Polypodium cavalieri Rosenst., Feddes Repert. Spec. Nov. Regni Veg. 13: 134. 1914. TYPE: Cavalerie 4008 (n. v.).

Polypodium (*Selliguea*) *sp. n.*, C. Chr. in Y.C. Wu, Bull. Dept. Biol. Sun Yatsen Univ. 3: 316, pl. 149. 1932.

Colysis hemitoma f. *integra* Ching, S.H. Fu, Ill. Import. Chin. Pl. Pterid. 233. 1957, nom. nud.

China(中国). **Fujian**(福建): Nanjing(南靖), Xiamen Univ. Exped. 552(PE); Nanping(南平), Fudan Univ. Exped. 54229(PE); Sanming(三明), W.M. Chu *et al.* 17933 (PYU); Shanghang(上杭), Fudan Univ. Exped. 91660(PE); Shaxian(沙县), Fudan Univ. Exped. 61155(PE); Wuping(武平), H.B. Chen 683(PE, PYU). **Guangdong**(广东): Dabu(大埔), W.T. Tsang 21284(PE); Lechang(乐昌), T.S. Chu 88(IBSC); Lianshan(连山), P.H. Tan 58082(IBSC, KUN, PE); Luofushan(罗浮山), N.K. Chun 41586(SZ); Nanxiong(南雄), L. Teng 6320(IBSC, PE); Qujiang(曲江), S.P. Ko 50217 (KUN, PE, SZ); Shixing(始兴), X.W. Wang et G.C. Zhang 244(IBSC); Wengyuan (翁源), S.K. Lau 910(PE); Xinfeng(新丰), Y.W. Taam 160(IBSC); Xinyi(信宜), S. P. Ko 51262(SZ); Yangchun(阳春), H.G. Ye et N. Liu 70(IBSC); Yangshan(阳山), Guangdong et Guangxi Exped. 388(PE); Yingde(英德), L. Teng 878(KUN). **Guangxi** (广西): Fusui(扶绥), H.S. Chun 12111(KUN); Lingui(临桂), Y.B. Xu 10192 (KUN); Longjing(龙津), H.S. Chun 12587(KUN); Pingnan(平南), Z.R. Wang 5209 (PE); Sanjiang(三江), H.G. Zhou 1673(GXAU); Yaoshan(瑶山), S.S. Sin 3761(PE), Yaoshan Exped. 13560(IBSC); Zhaoping(昭平), Wenzhu Exped. 7-362(GXMI). **Guizhou**(贵州): Chishui(赤水), P.S. Wang sine num.(WPS); Pingtang(平塘), H.Y. Hou 1832(PE). **Hainan**(海南): Lingao(临高), C.L. Tso 22626(PE). **Hunan**(湖南): Yizhang(宜章), P.H. Liang 84708(IBSC); Yongshun(永顺), H. Li *et al.* 1818(KUN). **Jiangxi**(江西): Anyuan(安远), C.M. Hu 2228(KUN, PE); Dayu(大余), M.X. Nie *et al.* 9405(KUN); Huichang(会昌), J.F. Cheng 40104(PYU), C.M. Hu 3139(KUN, PE); Nanfeng(南丰), M.X. Nie *et al.* 2228(KUN); Nankang(南康), M.X. Nie *et al.* 9873(KUN); Quannan(全南), Z.B. Yang *et al.* 2429(PE); Suichuan(遂川), 236 Exped. 128(PE); Xunwu(寻乌), C.M. Hu 1650(KUN, PE). **Sichuan**(四川): Qianwei(犍

为), K.H. Shing et Q. Xia 5234(PE); Rongxian(荣县), H.S. Kung 7164(PE); **Zhejiang** (浙江): Taishun(泰顺), C.F. Zhang 9148(PE).

日本、越南、马来西亚和印度尼西亚等地也有分布。模式标本采自广东雷州。

本种与 *C. wrightii* 很相似,不同之处在于本种叶片基部边缘通常具有不规则的条裂。Ching(1937)在中国蕨类植物图说中描述本种时虽然未提到隔丝,但在图中却绘有"叶体下面小脉上子囊群中的鳞片"。在线蕨属中,只有 *C. wrightii* 和本种的孢子囊上具有鳞片状隔丝(图 1: 4～6),说明二者有密切的联系。Nooteboom(1997)认为本种可能是 *C. macrophyllus* 和 *C. elliptica* 的杂交种。在没有细胞学证据前,仍做种处理。

8　新店线蕨 (台湾植物志)

Colysis × shintenensis (Hayata) H. Ito, Journ. Jap. Bot. 11: 90. 1935; Tagawa, Journ. Jap. Bot. 12: 491. 1936; Pic. Serm., Ind. Fil. , Suppl. 51. 1965; Lellinger, Amer. Fern Journ. 58: 155, f. 2～3. 1968; DeVol et Kuo in Fl. Taiwan 1: 172. 1975; Walker, Fl. Okinawa South. Ryukyu Isl. 118. 1976; Ohwi, Fl. Jap. 235. 1978; Tagawa, Col. Ill. Jap. Pterid. 162. 190, pl. 69. 1980; Shieh *et al*. in Fl. Taiwan 1: 477. 1994. ——*Polypodium wrightii* var. *lobatum* Rosenst., Hedwigia 56: 347. 1916. ——*Polypodium shintenense* Hayata, Ic. Pl. Form. 8: 154, f. 85～86. 1919. TYPE: China. Taiwan, Shinten, U. Faurie 215(n.v.).

Colysis wrightii var. *lacerata* Nakai, Bull. Nat. Sci. Mus. Tokyo 27: 24. 1950; Lellinger, Amer. Fern Journ. 58: 155, f. 2～3. 1968; Tagawa, Col. Ill. Jap. Pterid. 233. 1980. TYPE: Japan. Prov. Hyuga, Kitago, Kyushu, 7-Ⅳ-1948. Nakai(TNS, n. v.).

Colysis simplicifrons (Christ) Tagawa, Journ. Jap. Bot. 25: 114. 1950; Pic. Serm., Ind. Fil. , Suppl. 51. 1965; Tagawa, Col. Ill. Jap. Pterid. 163. 190, pl. 69. 1980. ——*Polypodium ellipticum* var. *simplicifrons* Christ, Bull. Herb. Boiss. 2: 832. 1902. TYPE: Japan. Nagasaki, Faurie 4987(K).

Colysis elliptica var. *pothifolia* f. *simplex* Ching, Bull. Fan Mem. Inst. Biol. 4: 335. 1933; H. Ito, Journ. Jap. Bot. 11: 89. 1935. TYPE: China. Guangdong, Tung Ping Hsien, K.K. Tsoong 1483(n. v.).

Japan(日本): Kagoshima, S. Mitsuts *et al*. 49(PYU); Kyushu, K. Iwatsuki 3341 (PE), M. Kido 1935(PE), S. Mitsuta 86(PYU), S. Mitsuta *et al*. 104(PYU), 110 (PYU), Miyoshi Furuse 10442, 10468, 10742, 10743, 10776, 12043(PE), G. Murata *et al*. 148(PYU); Ryukyus, J. Murata *et al*. 15606(PE), Miyoshi Furuse 2509, 8367, 10698, 10705(PE).

产于台湾。日本也有分布。模式标本采自台湾。

染色体数目 2n=72(Kurita, 1968; Mitui, 1968); 2n=99(Mitui, 1967b); 2n=108 (Kurita, 1968; Takei, 1983b); 2n=108 [Kurita, 1968, under the name of *C. simplicifrons* (Christ) Tagawa].

本种曾被 Rosenstock(1916)看做 *Polypodium wrightii* 的变种,Lellinger(1968)认为

其是 *C. wrightii* 和 *C. elliptica* 的杂交种。1968年,Kurita首次发现其染色体数目为2n=108,验证了其为三倍体杂种,但台湾线蕨的羽裂类型为 *C. elliptica* var. *pothifolia*,因此,本文认为它可能的亲本为 *C. wrightii* 和 *C. elliptica* var. *pothifolia*。

9 线蕨(中国主要植物图说——蕨类植物门)

Colysis elliptica (Thunb.)Ching, Bull. Fan Mem. Inst. Biol. 4: 333. 1933; H. Ito, Journ. Jap. Bot. 11: 89. 1935; H. Ito, Bot. Mag. Tokyo 53: 68. 1939; H. Ito, Fil. Jap. Ill. Tokyo 413. 1944; S.H. Fu, Ill. Import. Chin. Pl. Pterid. 233, pl. 313. 1957; Copel., Fern Fl. Philipp. 3: 491. 1960; Ic. Corm. Sin. 1: 266, f. 531. 1972; Walker, Fl. Okinawa S. Ryukyu Isl. 117. 1976; Fl. Jiangsu 77, pl. 118. 1977; Edie, Ferns Hong Kong 116, f. 51. 1978; Ohwi, Fl. Jap. 235. 1978; Tagawa, Col. Ill. Jap. Pterid. 163. 190, pl. 70. 1980; Dhir, Bibliotheca Pterid. 1: 130. 1980; Kurata et Nakaike, Ill. Pterid. Jap. 2: 272. 1981; V.G. Tu, Novosti Syst. Vyssh. Rast. 18: 32. 1981; R.J. Chen, Fl. Anhui 1: 204, pl. 215. 1985; Fl. Fujian. 1: 242, pl. 231. 1991; Nakaike, New Fl. Jap. Pterid.(rev. et enlarg.) 636, pl. 636a. b. 1992; S.X. Xu in Fl. Jiangxi 1: 332, pl. 345. 1993. ——*Polypodium ellipticum* Thunb., Fl. Jap. 335. 1784; Leveillei, Bull. Acad. Inter. Geo. Bot. 11: 205. 1902; C. Chr., Ind. Fil. 524. 1906; Ind. Fil. Suppl. 124. 1913; 148. 1934; Ching, Bull. Fan Mem. Inst. Biol. 2: 20, pl. 6. 1931; Wu *et al.*, Bull. Fan Mem. Inst. Biol. 3: 320, pl. 151. 1932. ——*Gymnogramme ellipticum* (Thunb.)Baker, Hook. et Baker, Syn. Fil. 389. 1868; Clarke, Trans. Linn. Soc. Lond. 1: 570. 1880; Hope, Journ. Bomb. Nat. Hist. Soc. 15: 102. 1903. ——*Selliguea elliptica* Thunb.)Bedd., Ferns Brit. India Ind. 1870; 392, f. 227. 1883; Christ, Bull. Acad. Int. Geogr. Bot. 178. 1909. —— *Leptochilus ellipticus* (Thunb.)Noot., Blumea 2: 285. 1997. TYPE: Japan. Thunberg; Taiwan, Hancock 82(n. v.).

Polypodium ellipticum var. *furcans* Ching, Bull. Fan Mem. Inst. Biol. 2: 31, pl. 6. 1931. ——*Colysis elliptica* var. *pothifolia* f. *furcans* Ching, Bull. Fan Mem. Inst. Biol. 4: 335. 1933; H. Ito, Journ. Jap. Bot. 11: 89. 1935. TYPE: Matthew 548(n. v.).

Polypodium boisii Christ, Journ. Bot.(Morot) 19: 75. 1905; C. Chr., Ind. Fil. 514. 1906; Ind. Fil. Suppl. 145. 1934.——*Colysis boisii* (Christ)Ching, Bull. Fan Mem. Inst. Biol. 4: 329. 1933; C. Chr., Ind. Fil. 56. 1934. TYPE: Vietnam. Annam, Tra-loc, Cadier 104(n. v.).

Polypodium morsei Ching, Bull. Fan Mem. Inst. Biol. 2: 17, pl.1. 1931; C. Chr., Ind. Fil. Suppl. 154. 1934. ——*Colysis morsei* Ching, Bull. Fan Mem. Inst. Biol. 4: 330. 1933; C. Chr., Ind. Fil. 56. 1934; Ching, Ic. Fil. Sin. 4: 200, pl. 200. 1937. TYPE: China. Guangxi, Lungchow, Ah Chin, N.W. Hills, Morse, H.B. 22, 62(holotype, K; isotype, PE).

Polypodium ellipticum Thunb. f. *brevis* Wu, Bull. Dept. Biol. Sun Yatsen Univ. 3: 322, pl. 152. 1932.

Polypodium ellipticum var. *typica* Makino et Matsuda, Tokyo Bot. Mag. 18. 1914; Makino, Tokyo Bot. Mag. 23: 72. 1909.

Selliguea coraiensis Christ, Fedd. Repert. Spec. Nov. Regni Veg. 5: 11. 1908; Bull. Acad. Int. Geogr. Bot. 178. 1909. ——*Polypodium faurianum* Nakai, Fl. Koreana 2: 316. 1911; Ching, Bull. Fan Mem. Inst. Biol. 2: 18, pl. 2. 1931; C. Chr., Ind. Fil. Suppl. 149. 1934. ——*Polypodium neoellipticum* Koidz., Bot. Mag. Tokyo 43: 388. 1929; C. Chr., Ind. Fil. Suppl. 154. 1934. TYPE: Korea, Quelpart I, Faurie 68 (P; isotype, BM n. v.).

Colysis elliptica (Thunb.)Ching 的变种检索表

1. 叶轴两侧有宽翅；羽片边缘呈明显波状折皱 ………………………………… c. **曲边线蕨** var. **flexiloba**
1. 叶轴两侧有狭翅或无翅；羽片边缘全缘或有时呈不明显浅波状。
  2. 羽片5～9对。
    3. 叶近二型；叶纸质，侧脉及小脉均不明显；植株高30～50 cm;最大羽片长7～12 cm,宽9～16 mm；根状茎粗2.5～4.5 mm ……………………………………………………… a. **线蕨** var. **elliptica**
    3. 叶一型；叶草质，侧脉及小脉均明显；植株高60～100 cm；最大羽片长15 ～24 cm,宽17～28 mm；根状茎粗5～10 mm ……………………………………………… b. **宽羽线蕨** var. **pothifolia**
  2. 羽片2～5对。
    4. 叶近革质；叶长17～30 cm,宽小于12 cm；最大羽片长5～8 cm,宽1.4～2.2 cm …………… ………………………………………………………………………… d. **长柄线蕨** var. **longipes**
    4. 叶草质；叶长40～70 cm,宽12～22 cm；最大羽片长11～18 cm，宽2.2～3.7 cm …………… ………………………………………………………………………… e. **滇线蕨** var. **pentaphylla**

Key to the varities of _Colysis elliptica_ (Thunb.)Ching

1. Fronds pinnatifid to a broad wing on each side of rachis, margin undulato-repand distinctly …………… ……………………………………………………………………………… c. var. **flexiloba**
1. Fronds pinnatifid to not or slightly wing on each side of rachis, margin entire or sometimes indistinct slightly undulate.
  2. Pinna 5～9 pairs.
    3. Plant 30～50 cm, leaf subdimorphous, chartaceous, vein and veinlet indistinct, the biggest lobe 7～12×0.9～1.6 cm, rhizome 2.5～4.5 mm wide ……………………………… a. var. **elliptica**
    3. Plant 60～100 cm, leaf monomorphous, herbaceous, vein and veinlet distinct, the biggest lobe 15～24 ×1.7～2.8 cm, rhizome 5～10 mm wide. ……………………………… b. var. **pothifolia**
  2. Pinna 2～5 pairs.
    4. Leaf subcoriaceous, lamina 17～30 cm long, less 12 cm broad, the biggest lobe 5～8×1.4～2.2 cm ……………………………………………………………………… d. var. **longipes**
    4. Leaf herbaceous, lamina 40～ 70×12～22 cm, the biggest lobe 11～18 × 2.2～3.7 cm …… ……………………………………………………………………… e. var. **pentaphylla**

9a **线蕨**（原变种）

var. **elliptica**

China(中国). **Anhui**(安徽): Mt. Huangshan(黄山), Y.J. Zhu 84096(PYU); Qi-

men(祁门), M.B. Deng *et al*. 5305(PE); Yixian(黟县), sine coll. 2812(PE). **Fujian** (福建): Chongan(崇安), P.H. Chiu 1616(PE); Changting(长汀), Meihua Mount. Exped. 63(IBSC); Dehua(德化), Fujian Exped. 137(PE); Jianning(建宁), Wuyi Exped. 2605(PE); Jianyang(建阳), P.H. Chiu 2297(PE); Nanjing(南靖), Fujian Exped. 431 (PE), Xiamen Univ. Exped. 1173(KUN, PE); Nanping(南平), Fujian Exped. 74073 (PE); Pinghe(平和), Ching F20(PE); Shanghang(上杭), H.B. Chen 1378(PYU); Shaxian(沙县), Y. Lin 37(IBSC); Taining(泰宁), M.S. Li 430(PE), 628(IBSC); Wuping(武平), H.B. Chen 678(PE, PYU). **Guangdong**(广东): Boluo(博罗), Y.Q. Wang 1146(IBSC); Conghua(从化), W.T. Tsang 24988(IBSC, PE); Dapu(大埔), S. C. Lee 202756(IBSC, PE); Dongwan(东莞), S.Y. Lau; Fengkai(封开), C. Wang 164029(IBSC); Fengshun(丰顺), S.C. Lee 201508(IBSC); Gaoyao(高要), C. Wang 162598(IBSC); Huaiji(怀集), Y.G. Liu 2623(IBSC, PE); Huiyang(惠阳), W.T. Tsang 25499(IBSC, PE), Z.F. Wang 121587(KUN, PE); Jiangmei(江门), Tso et Tsiang 2038(IBSC); Lechang(乐昌), H.S. Chun 1593(IBSC, KUN, PE); Liannan(连南), P.H. Tan 59394(IBSC, KUN); Lianping(连平), Y.G. Liu 153(PE); Lianshan(连山), P.H. Tan 58239(IBSC, PE); Longmen(龙门), Nanhunshan Exped. 71469(IBSC); Luofushan(罗浮山), N.K. Chun 40967(PE); Pingyuan(平远), L. Teng 4059(IBSC, KUN, PE); Qingyunshan(青云山), C. Wang 30446(IBSC), 32557(PE); Raoping(饶平), N.K. Chun 42801(KUN, PE, SZ); Ruyuan(乳源), J.X. Zhong 10841(IBSC); Shenzhen(深圳), Shenzhen Exped. 636(PE); Shixing(始兴), L. Teng 6765(IBSC, KUN, PE); Wengyuan(翁源), S.K. Lau 24128(IBSC); Xinfeng(新丰), L. Teng 8203 (IBSC, PE); Xinhui(新会), Y. Tsiang 2038(PE); Xinyi(信宜), C. Wang 32216(IBSC); Yingde(英德), L. Teng 827(IBSC, KUN), H.Y. Liang 60460(PE); Yunfu(云浮), Y. Tsiang 1845(IBSC, PE). **Guangxi**(广西): Baise(百色), Baise Exped. 1961(IBSC); Cangwu(苍梧), S.Q. Chen 10315(IBSC, KUN, PE); Chongzuo(崇左), C. Wang 39544(PE, SZ); Fangcheng(防城), H.G. Zhou 3774(GXAU); Fengshan(凤山), M.G. Song 30482(GXMI); Fusui(扶绥), S.Q. Chen 12069(PE); Guilin(桂林), Sino-France Exped. 122(IBSC); Guiping(桂平), H.G. Zhou et H. Li 933(GXAU); Hexian(贺县), H.G. Zhou 3572(GXAU); Lingui(临桂), H.F. Qin 700341(IBSC); Lingyun(凌云), Ching 6633(PE); Longan(隆安), H.G. Zhou 2689(GXAU); Longzhou(龙州), H.B. Morse 62(PE); Napo(那坡), S. China Exped. 806(IBSC, PE); Ningming(宁明), Nonggang Complex Exped. 20836(GXMI); Pingnan(平南), sine coll. 92(PE); Sanjiang(三江), H.G. Zhou 1622(GXAU); Tiane(天峨), Beijing Exped. 895886(PE); Wuming(武鸣), P.H. Chiu 5126(PE); Xiangzhou(象州), C. Wang 39544(IBSC); Xinfeng(新丰), H.G. Ye 1056(IBSC); Yaoshan(瑶山), S.S. Sin 3616(PE); Yangshuo(阳朔), Z.Z. Chen 53292(KUN), Y. Wan 45915(GXMI); Yongfu(永福), H.F. Qin 700341(IBSC); Zhaoping(昭平), Y.K. Li 402464(IBSC). **Guizhou**(贵州): Libo(荔波), P.S. Wang 76360(WPS), 76366(PYU, WPS); Wangmo(望谟), Guizhou Exped. 728(PE). **Hainan**

(海南)：Baisha(白沙)，X.C. Liu 26388(PE)；Baoting(保亭)，F.C. How 73535(PE)；Wanning(万宁)，Y. Zhong 3661，3851(PE)；Wuzhishan(五指山)，F.A. Mcclure 9667 (PE)．**HongKong**(香港)：Dapu(大埔)，T.C. Chen *et al*. 146(PE)，W.T. Tsang 21235 (PE)；Xinjie(新界)，N.K. Chun 41874(IBSC，PE)；Cavalerie 23(PE)；N.K. Chun 42934(PE)；S.Y. Hu，8816，9011，9152A(PE)；sine coll. 1845(PE)．**Hunan**(湖南)：Jiangyong(江永)，P.C. Tam 63687(PE)；Yizhang(宜章)，P.H. Liang 84650(IBSC)，W.T. Tsang 23417(IBSC)；Yangmingshan(阳明山)，Y. Tsiang et H.S. Chun 639(IBSC)；Yuelushan(岳麓山)，B.G. Li 26(PE)，Z.G. Zhang 92(PE)．**Jiangsu**(江苏)：Yixing(宜兴)，Y.Z. Lan 31，117(PE)，Lan *et al*. 2(PE)．**Jiangxi**(江西)：Anyuan(安远)，2275(KUN)；Dayu(大余)，M.X. Nie *et al*. 9209(KUN)；Guangchang(广昌)，J.S. Yue 2448(KUN，PE)；Huichang(会昌)，C.M. Hu 3433(KUN，PE)；Jian(吉安)，236 Exped. 87(PE)；Jinggangshan(井冈山)，J.F. Cheng *et al*. 730267(IBSC，PE)；Longnan (龙南)，S.K. Lau 4454(IBSC)；Lushan(庐山)，P.H. Chiu 3276(PE)；Nanfeng(南丰)，M.X. Nie *et al*. 2275(KUN)；Nankang(南康)，M.X. Nie *et al*. 9922(KUN)；Quannan (全南)，J.F. Cheng 64378(PE)；Shicheng(石城)，C.M. Hu 5118(KUN)；Suichuan(遂川)，236 Exped. 4156(PE)；Yifeng(宜丰)，Y.G. Xiong 6277(PE)；Yihuang(宜黄)，C.H. Li et C. Chen 1686(PE)；Yongfeng(永丰)，X.X. Yang 831110(IBSC)；Yongxiu(永修)，S.K. Lai 2060(PE)；Yushan(玉山)，M.X. Nie 6431(PE)；Zixi(资溪)，S.K. Lai 3184(KUN，PE)．**Yunnan**(云南)：Hekou(河口)，W.M. Chu *et al*. 1377(PE，PYU)；Maguan(马关)，S.K. Wu 4094(KUN，PE)；Wenshan(文山)，Y.Y. Li 426(KUN)．**Zhejiang**(浙江)：Hangzhou(杭州)，S.G. Zhang 1781(PE)；Jinyun(缙云)，C.Q. Lu 561 (PE)；Kaihua(开化)，sine coll. 29799(PE)；Longquan(龙泉)，P.H. Chiu 3735(PE)；Ningbo(宁波)，S.G. Zhang 998(PE)；Ninghai(宁海)，K.H. Shing *et al* 63(PE)；Simingshan(四明山)，sine coll. 27663(PE)；Suichang(遂昌)，J.X. Wang 1568(PE)；Tiantai (天台)，C.Q. Lu 158(PE)；Xianxialing(仙霞岭)，P.H. Chiu 111(PE)；Yandangshan (雁荡山)，P.H. Chiu 112(PE)；Yinxian(鄞县)，G.R. Chen 1509(KUN)；Yueqing(乐清)，K.H. Shing *et al*. 139(PE)．

Japan(日本)：Honshu，H. Ohba et S. Akiyama 2885(IBSC)；Kyushu，Miyoshi Furuse 4796，8354，10220，10845，33667(PE)，M. Kido 1690(PE)，H. Ohba et S. Akiyama 397(KUN)；Nagasaki，K. Yonekura 92066(IBSC)；Shikoku，H. Inoue 1296(PE)；Y. Saiki 2334(PE)．

产自长江以南各省。生于海拔100～2500 m的山坡林下或溪边岩石上。越南也有分布。模式标本采自日本和台湾。

9b　宽羽线蕨(中国主要植物图说——蕨类植物门)(变种)

var. **pothifolia** (Makino)Ching，Bull. Fan Mem. Inst. Biol. 4：334. 1933；S.H. Hemionitis pothifolia D. Don，Prodr. Fl. Nepal. 13. 1825. ——*Selliguea pothifolia* (D. Don)J. Sm.，Journ. Bot. 3：399. 1841.——*Colysis pothifolia* (D. Don)C. Presl，Epim. Bot. 148. 1851；C.Chr.，Ind. Fil. 185. 1906；H. Ito，Fil. Jap. Ill. Tokyo 414. 1944；

Ching *et al*. in Chun *et al*., Fl. Hainan. 1: 186. 1964; Ohwi, Fl. Jap. 235. 1978; Tagaea, Col. Ill. Jap. Pterid. 163. 190, pl. 70. 1980; Kurata et Nakaike, Ill. Pterid. Jap. 2: 284, photo 284, pl. 285. 1981; V.G. Tu, Novosti Syst. Vyssh. Rast. 18: 33. 1981; C.M. Kuo in Taiwan. 30: 42. 1985; K. Iwats., Himalaya Pl. 1: 336. 1988; Tagawa et K. Iwats., Fl. Thailand 4: 540. 1989; L.K. Ling *et al*. in Fl. Fujian. 1: 242. 1991; K.H. Shing, in W.T. Wang ed. Vasc. Pl. Hengduan Mount. 1: 181. 1993; S.X. Xu in Fl. Jiangxi 1: 333, pl. 346. 1993; DeVol et Kuo in Fl. Taiwan 1: 475. 1994.——*Colysis pothifolia* (Ham. ex D. Don)H. Ito, Journ. Jap. Bot. 11: 89. 1935; Bot. Mag. 53: 68. 1939; Pic. Serm., Ind. Fil. Suppl. 50. 1965; S.P. Khullar, Ill. Fern Fl. W. Himalaya 1: 73, pl. 27. 1994. TYPE: Narainhetty Nepalensium, Buchanan Hamilton(BM, n.v.).

Colysis pothifolia f. *bipinnatifida* H. Ito, Journ. Jap. Bot. 11: 89. 1935; Kurata, Journ. Geobot. 2: 41. 1963. ——*Colysis pothifolia* monstr. *bipinnatifida* (H. Ito) Nakaike, New Fl. Jap. Peterid. (rev. et enlarg.) 639, pl. 639. 1992.

Colysis pothifolia var. *membranacea* Nakai, Bull. Nat. Sci. Mus. Tokyo 27 : 23. 1949.

Colysis elegans Kurata, Journ. Geobot. 2: 41. 1963; Kurata et Nakaike, Ill. Pterid. Jap. 2: 268, photo 268, pl. 269. 1981; F.M. Jarrett., Ind. Fil. 40. 1985; Nakaike, New Fl. Jap. Pterid. (rev. et enlarg.) 635, pl. 635. 1992. TYPE: Japan. Kyushu, O-hamata, Tsuruta-mura, Satsuma-gun, Prov. Satsuma, Aug. 1961. Kurata 8722.

Polypodium flavescens Ching, Bull. Fan Mem. Inst. Biol. 2: 22, pl. 8. 1931; C. Chr., Ind. Fil. Suppl. 148. 1934; R.J. Johns, Ind. Fil., Suppl. 6: 83. 1996. ——*Colysis flavescens* (Ching) Nakaike, S. Matsumoto et Gurung, Distrib. Maps Pterid. Kathmandu, Nepal 3(repr. from Cryptog. Himal., 2 C. et E. Nepal) 189. 1990. TYPE: China. Guizhou, Gan-chouen, Cavalerie 7701(K, P).

Colysis leptophylla H. Ito, Bot. Mag. Tokyo 53: 68. 1939; Pic. Serm., Ind. Fil. Suppl. 50. 1965.

Colysis × *kiusiana* Kurata, Journ. Geobot. 2: 37. 1961; F.M. Jarrett, Ind. Fil. 40. 1985. TYPE: Japan. Kyushu, hase, Mino-mura, Koyu-gun, Prov. Hyuga, Aug. 1958, Kurata 2456.

Colysis elliptica auct. non(Thunb.)Ching: DeVol *et al*. in Fl. Taiwan 1: 170. 1975; Hennipman *et al*. in Kramer et Green, Fam. et Gen. Vasc. Pl. 218, f. 117. 1990.

China(中国). **Fujian**(福建): Fuzhou(福州), W.M. Chu *et al*. 17895(PYU); Jianyang(建阳), Wuyishan Exped. 1905(PE); Nanjing(南靖), Fujian Exped. 592(PE); Taining(泰宁), M.S. Li 229(PE); Xiamen(厦门), G.D. Yie 1203(PE); Yongtai(永泰), Wuyishan Exped. 81-854(IBSC). **Guangdong**(广东): Huaiji(怀集), Y.K. Lau 2910 (IBSC, PE); Lechang(乐昌), B.Y. Chen 2825(IBSC); Longmen(龙门), G.C. Zhang 473(IBSC); Luofushan(罗浮山), N.K. Chun 41603(PE); Qujiang(曲江), C. Wang

31709(IBSC); Ruyuan(乳源), Z. S. Chung 10981(IBSC); Shenzhen(深圳), Shenzhen Exped. 875, L. Shi 97039(PE); Shixing(始兴), H.G. Ye et F.W. Xing 1079(IBSC); Xinfeng(新丰), H. G. Ye 1106(IBSC); Xinyi(信宜), C. Wang 32182(IBSC, PE); Yangchun(阳春), N. Liu et H.G. Ye 226(IBSC); Yingde(英德), S. Wang 163819(IBSC, KUN, PE); Zhaoqing(肇庆), G.L. Shi 12109(IBSC). **Guangxi**(广西): Cangwu(苍梧), S.H. Chun 10184(IBSC); Damiaoshan(大苗山), H. S. Chun 15684(IBSC); Fusui(扶绥), S.H. Chun 12069(IBSC); Guiping(桂平), H. Li et H.G. Zhou 984(GXAU); Hengxian(横县), Z.Z. Chen 50439(KUN, PE); Hexian(贺县), H.G. Zhou 3550(GXAU); Lingyun(凌云), sine coll. 158(PE); Longsheng(龙胜), P.S. Chiu 4831(PE); Luocheng(罗城), Beijing Exped. 894619(PE); Rongshui(融水), H.S. Chun 15684(KUN, PE); Rongxian(容县), H. S. Chun 9625(IBSC, KUN, PE); Sanjiang(三江), H. G. Zhou 1827(GXAU); Shangsi(上思), W.T. Tsang 24401(IBSC); Tiane(天峨), Beijing Exped. 891424(PE); Tianlin(田林), Hongshuihe Bot. Exped. 204(PE); Wuming(武鸣), H.G. Zhou et H. Li 1300(GXAU), sine coll. 116(PE); Yangshuo(阳朔), H. F. Qin *et al*. 60(IBSC); Yaoshan(瑶山), S. S. Sin 146(PE), Yaoshan Exped. 13366(IBSC). **Guizhou**(贵州): Anshun(安顺), Anshun Drug Contr. Inst. Exped. 75437(PE); Dushan(独山), X.Y. How 1907(PE); Libo(荔波), P.S. Wang 90366(WPS); Pingtang(平塘), X.Y. How 1833(PE); Wangmo(望谟), F. Wang 213(WPS), Z.S. Zhang 2141(PE); Xingren(兴仁), Z.S. Zhang 8423(PE); Zhenfeng(贞丰), S.W. Teng 90835(IBSC, PE). **Hainan**(海南): Baisha(白沙), E. Hainan Exped. 549(IBSC, PE); Changjiang(昌江), S.K. Lau 1804(IBSC); Danzhou(儋州), W.T. Tsang 806(IBSC, PE); Dongfang(东方), H. S. Chun 11395(IBSC, KUN, PE); Ganen(感恩), H. Y. Liang 65342(IBSC, PE); LeDong(乐东), Z.X. Li et F.W. Xing 1246(IBSC); Qiongzhong(琼中), W.M. Chu *et al*. 1781(PYU), H. S. Chun 10764(IBSC, KUN), F. A. Mcclure 9376(PE), C. Wang 35396(IBSC, PE); Tongzha(通什), C. L. Tso et N. K. Chun 43707(PE); Wanning(万宁), Y. Zhong 385(IBSC). **HongKong**(香港): sine coll. 495(PE). **Hunan**(湖南): Changsha(长沙), Z.G. Zhang 26(PE); Dongkou(洞口), L.H. Liu et G. Z. He 16744(IBSC, KUN, PE); Nanyue(南岳), L.H. Liu 15863(PE); Taoyuan(桃源), sine coll. 1247(PE); Yangmingshan(阳明山), Y. Tsiang et S. H. Chun 610(IBSC). **Jiangxi**(江西): Anfu(安福), J.S. Yue *et al*. 2995(KUN, PE); Chongyi(崇义), M.X. Nie *et al*. 9074(KUN); Dayu(大余), J.S. Yue *et al*. 1564(KUN, PE); Huanggangshan(黄岗山), Y.G. Xiong 6375(PE); Huichang(会昌), C.M. Hu 3143(KUN, PE); Longnan(龙南), S.K. Lao 4821(IBSC); Lushan(庐山), Y.G. Xiong 7081(PE); Ruijin(瑞金), Lushan Bot Gard. Exped. 4396(KUN); Wugongshan(武功山), Jiangxi Exped. 1595(PE); Xiushui(修水), S.K. Lai 3450(PE); Yongxin(永新), S.K. Lai 4979(KUN); Yushan(玉山), M.X. Nie 6429(PE). **Chongqing**(重庆): C.Z. Liu *et al*. 10040(PE), S. Chow 1210(PE). **Taiwan**(台湾): Ilan(宜兰), T. Y. Liu *et al*. 811(PE); Jilong(基隆), C. Owatasi sine num.(PE); Taibei(台北), D.E. Boufford et B. Bartholomew 25221

(KUN), Simada Hidetaro SH1174(IBSC), Nakamura Taizo 298(PE), K. Odashima 17746(IBSC), T. Tanaka *et al*. 17746(PE), Taihoku. Imper. Univ. Exped. 1174(PE); Taitong(台东), T.I. Chuang 2456(PE), W.P. Leu *et al*. 2122(PE). **Yunnan**(云南): Gongshan(贡山), Qinghai et Xizang Exped. 9088(PE); Hekou(河口), sine coll. 2187 (PE); Jinping(金平), X.W. Li 461(KUN), Sino-Russia Yunnan Exped. 1952(PE); Luchun(绿春), W.M. Chu *et al*. 6737(WPS), Luchun Exped. 762(KUN); Lushui(泸水), W.N. Yunnan Exped. 8114(KUN, PE); Malipo(麻栗坡), K.M. Feng 13991 (KUN, PE); Menghai(勐海), Sino-Russia Yunnan Exped. 7089(PE); Mengzi(蒙自), W. Hancock 43(PE); Tengchong(腾冲), S.K. Wu 6818(KUN); Xinping(新平), W.M. Chu 185(PE, PYU); Xishuangbanna(西双版纳), Sino-Russia Yunnan Exped. 7098 (KUN); Yuanyang(元阳), Luchun Exped. 1805(PE); Zhenkang(镇康), J. Peng 5598 (PYU). **Zhejiang**(浙江): Jiangshan(江山), sine coll. 2812(PE); Zhenhai(镇海), X.Y. He 27348(PE); Zhoushan(舟山), G.R. Chen 1583(KUN).

Japan(日本): Kyushu, M. Kido 5378, 7539(PE), S. Mitsuta *et al*. 108(PYU), M. Tagawa 7871(PE), M. Togashi sine num.(PYU), T. Yamazaki *et al*. 2284(KUN); sine coll. 14233(PE); Miyoshi Furuse 3457, 7642, 7725, 7743, 10603, 11180, 12026 (PE).

Vietnam(越南): Sino-Vietnam Exped. 198(KUN, PE), 677(KUN), 1171(KUN, PE), 1498(KUN), W.T. Tsang 29170(IBSC), 30399(IBSC).

产于长江以南各省。生于林下湿地或岩石上。尼泊尔、不丹、泰国、菲律宾、印度和缅甸也有分布。模式标本采自尼泊尔。

本变种与原变种区别在于,植株高达 76(36~123) cm,羽片 7(4~14)对,线状披针形或阔披针形,长 18.7(13~31) cm,宽 2.4(0.3~3.6) cm。

9c 曲边线蕨(中国高等植物图鉴)(变种)

var. **flexiloba** (Christ)L. Shi et X.C. Zhang, comb. nov.

Polypodium flexilobum Christ, Bull. Acad. Int. Geogr. Bot. 107. 1904; C. Chr., Ind. Fil. Suppl. 124. 1913; Bull. Fan Mem. Inst. Biol. 2: 20, pl. 5. 1931; C. Chr., Ind. Fil. Suppl. 149. 1934. ——*Colysis flexiloba* (Christ)Ching, Bull. Fan Mem. Inst. Biol. 4: 330. 1933; C. Chr., Ind. Fil. 56. 1934; S.H. Fu, Ill. Import. Chin. Pl. Pterid. 234. 1957; Ic. Corm. Sin. 1: 266. 1972; S.X. Xu in Fl. Jiangxi 1: 331, pl. 344. 1993. TYPE: China. Yunnan, Mengtze, Henry 10769A(holotype, K, A photo PE).

Polypodium ellipticum var. *undulato-repandum* C. Chr., Bull. Acad. Geogr. Bot. 107. 1904.——Polypodium flexilobum var. *undulato-crenatum* (C. Chr.)Ching, Bull. Fan Mem. Inst. Biol. 2: 20. 1931. ——*Colysis flexiloba* var. *undulato-repanda* (C. Chr.)Ching, Bull. Fan Mem. Inst. Biol. 4: 331. 1933. TYPE: China. Guizhou, Tarang. Esquirol 2586.

Polypodium dissimilialatum Bonap., Notes Pterid. 14: 157. 1924; C. Chr., Ind. Fil. Suppl. 148. 1934. ——*Colysis dissimilialata* (Bonap.)Ching, Bull. Fan Mem. Inst. Bi-

ol. 4: 330. 1933; C. Chr., Ind. Fil. 56. 1934; Tardieu et C. Chr. in Lecomte, Fl. Indo-Chine 7: 494. 1941; V. G. Tu, Novosti Syst. Vyssh. Rast. 18: 32. 1981. TYPE: Vietnam. Tokin, Chapa, Lao-Kay, Eberhardt 5097(holotype, BM).

Polypodium latilobum Ching, Bull. Fan Mem. Inst. Biol. 29: 21, pl. 7. 1931; C. Chr., Ind. Fil. Suppl. 151. 1934. ——*Colysis latiloba* (Ching)Ching, Bull. Fan Mem. Inst. Biol. 4: 330. 1933; C. Chr., Ind. Fil. 56. 1934. TYPE: Sikkim. Munipur, Clarke 42105(K, photo PE).

Colysis sanjiangensis H.G. Zhou et Hua Li, Acta Bot. Yunnan. 3: 254, pl. 2. 1993, "H. G. Zhou et H. Li". TYPE: China. Guangxi, Sanjiang Xian, Linxi, inevergreen broadleaf forest of sandstone area, alt. 400 m, 3-Ⅲ-1990, H.G. Zhou 1778(holotype, GX-AC, isotype, PYU).

China(中国). **Guangxi**(广西): Baise(百色), S. China Exped. 2196(IBSC, PE); Damiaoshan(大苗山), H. S. Chun 15114(IBSC, KUN); Debao(德保), C. C. Chang 13717(IBSC); Donglan(东兰), C. C. Chang 11439(IBSC); Hexian(贺县), H. G. Zhou 3581(GXAU); Huanjiang(环江), H. S. Chun 15465(IBSC, KUN, PE); Lingyun(凌云), S. China Exped. 1566(IBSC, PE); Longsheng(龙胜), Longsheng Exped. 50023(KUN); Luocheng(罗城), Beijing Exped. 894705(PE); Napo(那坡), S. China Exped. 974(IB-SC, PE); Rongshui(融水), Beijing Exped. 896479(PE); Sanjiang(三江), H. G. Zhou 1673(PYU); Tiane(天峨), Beijing Exped. 390103(PE); Tianlin(田林), Hongshuihe Bot. Exped. 545(KUN, PE); Xili n(西林), Hongshuihe Bot. Exped. 1372(KUN, PE); Xingan(兴安), Xingan Exped. 112(IBSC, KUN). **Guizhou**(贵州): Anlong(安龙), Guizhou Exped. 4924(PE); Chishui(赤水), P. S. Wang 76832(WPS); Dushan(独山), X. Y. How 1888(PE); Fanjingshan(梵净山), P. S. Wang F0612(PYU); Guiding(贵定), Y. Tsiang 5626(PE); Huishui(惠水), L. L. Zeng 91134(WPS); Jiangkou(江口), C. P. Tsian *et al*. 32572(PE); Kaili(凯里), S. Guizhou Exped. 1293(KUN, PE); Leishan(雷山), B. Liu 77037(PYU), P. S. Wang 76910(WPS); Luodian(罗甸), Guizhou Exped. 434(KUN, PE); Pingtang(平塘), X. Y. How 1849(PE); Qingzhen(清镇), Sichuan et Guizhou Exped. 2145(PE); Rongjiang(榕江), S. Guizhou Exped. 3089(KUN, PE); Songtao(松桃), sine coll. 2174(PE); Tianzhu(天柱), E. Guizhou Exped. 75288(WPS); Xingreng(兴仁), C. Z. Dang et P. Dang 197(PE); Zhenning(镇宁), P. S. Wang 75615 (WPS); Ziyun(紫云), P. S. Wang 75399(PE); Zunyi(遵义), Sichuan et Guizhou Exped. 1442(PE). **Hunan**(湖南): Baojing(保靖), L. H. Liu 9720(IBSC, KUN); Fenghuang(凤凰), Wuling Exped. 1218(IBSC); Qianyang(黔阳), Anjiang Agri. School Exped. 875 (PE); Sangzhi(桑植), Sangzhi Forest Inst. Exped. 348(KUN); Xiangxi(湘西), L. H. Liu 9720(PE); Xuefengshan(雪峰山), Z. H. Li 2420(PE); Yongshun(永顺), Hunan Exped. 360(IBSC, PE); Zhangjiajie(张家界), K. H. Shing et Q. Xia 5709(PE); Zhijiang (芷江), Wuling Exped. 1725(IBSC). **Jiangxi**(江西): Fengxin(奉新), S. Y. Liu *et al*. 1403(KUN, PE); Jian(吉安), sine coll. 70155(PE); Jingangshan(井冈山), J. F. Cheng

730095(PE); Ruijin(瑞金), C.M. Hu 4396(PE); Suichuan(遂川), S.X. Xu 8310291 (PE); Tonggu(铜鼓), S.K. Lai 3525(KUN, PE); Wugongshan(武功山), Jiangxi Exped. 1380(PE); Yongxiu(永修), S.K. Lai 2060(KUN). **Sichuan**(四川): Chengkou(城口), T.L. Dan 103178(PE); Jinyunshan(缙云山), Z.S. Diao 797(PE); Daxiangling(大相岭), H.S. Kung 4156(PE, PYU); Junlian(筠连), Chuanjingyi Exped. 49(KUN); Nanchuan(南川), Z.Y. Liu 3874(PE, PYU); Omei(峨眉山), K.H. Shing et K.Y. Lang 1257(PE), G.H. Yang 57551(IBSC, PE), X.J. Zheng O.30017(PE, SZ); Pingshan(屏山), Chuanjingyi Exped. 790(KUN, PE); Qingchengshan(青城山), K.H. Shing et Q. Xia 5183(PE); Xiushan(秀山), sine coll. 830(PE); Youyang(酉阳), Z.Y. Liu *et al*. 6243(PYU). **Taiwan**(台湾): W. Hancock 82(PE). **Yunnan**(云南): Cangyuan(沧源), W.M. Chu *et al*. 15363(PYU); Eshan(峨山), G.H. Yang 57551(KUN); Guangnan(广南), W.M. Chu *et al*. 12578(PYU); Hekou(河口), K.H. Cai 219(PE); Jing-Dong(景东), S.G. Xu 4500(KUN); Jinghong(景洪), C.W. Wang 79451(KUN, PE); Jinping(金平), W.M. Chu 5600(PYU), W.M.Chu *et al*. 6568(PE); Luchun(绿春), Luchun Exped. 762(PE); Luoping(罗平), W.M. Chu *et al*. 13273(PYU); Maguan(马关), S.K. Wu 4143(PE); Malipo(麻栗坡), K.M. Feng 22633(KUN); Menghai(勐海), C.W. Wang 76312(KUN, PE); Mengla(勐腊), W.M. Chu *et al*. 15779(PYU); Mengzi (蒙自), Henry 10769A(PE); Pingbian(屏边), H. T. Tsai 60231(KUN, PE); Puer(普洱), C.W. Wang 81101(KUN, PE); Suijiang(绥江), W.M. Chu 5022(PE, PYU); Wenshan(文山), S.L. Yu 30042(KUN); Xichou(西畴), K.M. Feng 11500(KUN, PE); Xishuangbanna(西双版纳), Sino-Russia Yunnan Exped. 7242(KUN, PE); Yuanyang(元阳), Luchun Exped. 1805(KUN).

Vietnam: Sino-Vietnam Exped. 652(KUN), 1543(KUN).

生于林下。模式标本采自云南。

本变种叶轴两侧具有宽翅,羽片边缘有较明显的波状褶皱,易与其它羽裂类型区别。

9d 长柄线蕨(海南植物志)(变种)

var. **longipes** (Ching)L. Shi et X.C. Zhang, comb. nov.

Colysis longipes Ching, Bull. Fan Mem. Inst. Biol. 4: 332. 1933; Fil. Sin. Fas 2: 92, pl. 92. 1934; C. Chr., Ind. Fil. 56. 1934; Tardieu et C.Chr. in Lecomte, Fl. Indo-Chine 7(2): 496. 1941; Ching *et al*. in Chun *et al*., Fl. Hainan 1: 186. 1964; V.G. Tu, Novosti Syst. Vyssh. Rast. 18: 30. 1981. TYPE: China. Hainan, Dung Ka to Win Fa Shi, 24-Ⅷ-1932, Tso et Chun 43697(PE).

China(中国). **Hainan**(海南): Baoting(保亭), F.C. How 73214(PE), 73532(IBSC); Dongfang(东方), Hainan Exped. 283(IBSC, KUN, PE, PYU); Jianfengling(尖峰岭), Ching 1311(PE); Tongzha(通什), C.L. Tso et N.K. Chun 43697(IBSC, PE); H.Y. Liang 64123(PE).

本变种特产于海南,叶质厚,羽片2~3对,叶片呈三角形。生密林下阴湿岩石上。模式标本采自海南。

9e　滇线蕨（中国蕨类植物图谱）（变种）

var. **pentaphylla** (Baker)L. Shi et X.C. Zhang, comb. nov.

Polypodium pentaphyllum Baker, Ann. Bot. 5: 478. 1891; C. Chr., Ind. Fil. Suppl. 126. 1913. ——*Gymnogramme pentaphylla* Baker, Kew Bull. 233. 1898. ——*Polypodium mediosorum* Ching, Bull. Fan Mem. Inst. Biol. 2: 19, pl. 4. 1931; C. Chr., Ind. Fil. Suppl. 153. 1934. ——*Colysis pentaphylla* (Baker)Ching, Bull. Fan Mem. Inst. Biol. 4: 332. 1933; C. Chr., Ind. Fil. 56. 1934; Ching, Ic. Fil. Sin. 4: 199, pl. 199. 1937; Tagawa et K. Iwats. in Fl. Thailand 4: 540, f. 54. 1989; K.H. Shing in W. T. Wang, Vascul. Pl. Hengduan Mount. 1: 181. 1993. TYPE: China. Yunnan, Mengtze Mount., Henry 9033(holotype, K; isotype, BM, P).

Gymnogramme longisora Baker, Journ. Bot. (London) 267. 1890. ——*Polypodium longisorum* (Baker)C. Chr., Ind. Fil. 541. 1906; Ching, Bull. Fan Mem. Inst. Biol. 2: 19, pl. 3. 1931; C. Chr., Ind. Fil. Suppl. 152. 1934. ——*Colysis longisora* (Baker) Ching, Bull. Fan Mem. Inst. Biol. 4: 331. 1933; C. Chr., Ind. Fil. 56. 1934; Tardieu et C. Chr. in Lecomte, Fl. Indo-Chine 7(2): 494. 1941; V.G. Tu, Novosti Syst. Vyssh. Rast. 18: 33. 1981. SYNTYPE: Vietnam. Tonkin, environs de Tu-shap, 15-9-1886, Balansa 1870, 1980(P, n.v.).

China(中国). **Guangdong**(广东): Yangchun(阳春), Zhanjiang Bot. Exped. 3326 (IBSC). **Guangxi**(广西): Guiping(桂平), N.K. Liang 12937(GXMI); Hexian(贺县), Y.K. Li 40603(IBSC); Longlin(隆林), H.G. Zhou 3021(GXAU); Longzhou(龙州), Nonggang Complex Exped. 20413(GXMI), H.G. Zhou 2834(GXAU); Ningming(宁明), H.G. Zhou 3712(GXAU); Tengxian(藤县), F.S. Qin 14132(GXMI); Tianlin(田林), Hongshuihe Bot Exped. 204(KUN); **Guizhou**(贵州): Anshun(安顺), P.S. Wang 75437 (PYU); Wangmo(望谟), F. Wang et Journ. H. Huang 213(PYU); **Xizang**(西藏): Medôg(墨脱), S.Z. Cheng et B.S. Li 1512, 3282(PE); **Yunnan**(云南): Eshan(峨山), S.K. Wu 314(KUN); Fengqing(凤庆), T.T. Yu 16708(PE); Fugong(福贡), W.M. Chu 11605(PYU, WPS); Gongshan(贡山), K.M. Feng 7242(KUN, PE); Guangnan(广南), W.M. Chu *et al*. 12578(PYU); Hekou(河口), K.H. Cai 718(PE); Jingdong(景东), M.K. Li 1207(KUN, PE); Jinghong(景洪), W.M. Chu 681(PYU), M.K. Li 2560(KUN), Pract. Exped. 681(PE); Jinping(金坪), Sino-Russia Yunnan Exped. 2424 (KUN, PE); Linchang(临沧), W.M. Chu *et al*. 15502(PYU); Luchun(绿春), D.D. Tao 966(KUN, PE); Lushui(泸水), S.K. Wu 8327(KUN); Malipo(麻栗坡), K.M. Feng 13956(KUN); Maguan(马关), H.T. Tsai 588328(KUN, PE); Mengla(勐腊), W. M. Chu *et al*. 15777(PYU); Menglian(孟连), H. He 38(KUN); Menglun(勐仑), H. Koyama *et al*. 510(KUN); Pingbian(屏边), K.M. Feng 4530(KUN, PE); Shuangbai (双柏), Yunnan Univ. Exped. 3628(PE); Tengchong(腾冲), W.M. Chu A902(PYU); Wenshan(文山), K.M. Feng 11206(KUN, PE); Xichou(西畴), Z.R. Wang 575(PE); Xinping(新平), W.M. Chu 324(PYU); Yanshan(砚山), C.W. Wang 84564(KUN);

Yingjiang(盈江), W. Yunnan Bot. Exped. 10800(PYU); Yongde(永德), W.M. Chu *et al*. 14988(PYU); Yuanjiang(元江), Y.H. Li 5881(KUN); Yuanyang(元阳), W.M. Chu et C.L. Dang 8617(PYU); Zhenkang(镇康), C.W. Wang 72180(KUN, PE).

生于海拔 500~1500 m 的林下。模式标本采自云南。

本变种羽片少,3(2~8)对,羽片中部宽达 3(1.7~5) cm,集中分布于喜马拉雅地区。

10 掌叶线蕨(中国蕨类植物图谱)

Colysis digitata (Baker)Ching, Bull. Fan Mem. Inst. Biol. 4: 328. 1933; C. Chr., Ind. Fil. 56. 1934; Ching, Ic. Fil. Sin. 4: 198, pl. 198. 1937; Tardieu et C. Chr. in Lecomte, Fl. Indo-Chine 7(2): 495. 1941; S.H. Fu, Ill. Import. Chin. Pl. Pterid. 234, pl. 314. 1957; Ching *et al*. in Chun *et al*., Fl. Hainan. 1: 185, f. 88. 1964; Ic. Corm. Sin. 1: 265, f. 530. 1972; V. G. Tu, Novosti Syst. Vyssh. Rast. 32. 1981. —— *Gymnogramme digitata* Baker, Journ. Bot. 267. 1890; C. Chr., Ind. Fil. 335. 1905. ——*Polypodium digitatum* (Baker)C. Chr., Ind. Fil. 522. 1906; C. Chr., Ind. Fil. Suppl. 147. 1934. —— *Leptochilus digitatus* (Baker) Noot., Blumea 2: 284. 1997. TYPE: Vietnam. Tonkin, Dong Don, Balansa 102(K; isotype, L).

Polypodium annamense Christ, Journ. Bot. (Morot) 19: 77. 1905; Merr., Lingnan Sci. Journ. 5: 17. 1927; C. Chr., Ind. Fil. Suppl. 144. 1934. ——*Colysis digitata* f. *annamensis* (Christ)Ching, Bull. Fan Mem. Inst. Biol. 4: 328. 1933; Ching *et al*. in Chun *et al*., Fl. Hainan. 1: 186. 1964. TYPE: Vietnam. Annam, Cadier 45(isotype, PE).

Polypodium cadieri Christ, Journ. Bot. (Morot) 19: 76. 1905; C. Chr., Ind. Fil. 515. 1906; C. Chr., Ind. Fil. Suppl. 145. 1934. ——*Colysis digitata* f. cadieri (Christ) Ching, Bull. Fan Mem. Inst. Biol. 4: 329. 1933; Ching *et al*. in Chun *et al*. Fl. Hainan. 1: 186. 1964. TYPE: Vietnam. Tra-loc, Annam, Cadier 103.

Colysis digitata f. *laciniata* Ching, Acta phytotax. Sin. 2: 154. 1959; Ching *et al*. in Chun *et al*., Fl. Hainan. 1: 186. 1964. TYPE: China. Hainan, Yaxian, Nanlinling, 27-Ⅸ-1933, C. Wang 34313.

Colysis triphylla Ching, Acta Phytotax. Sin. 2: 155, pl. 23, f. 31. 1959; Ching *et al*. in Chun *et al*., Fl. Hainan 1: 185. 1964; Pic. Serm., Ind. Fil. , Suppl. 51. 1965. TYPE: China. Hainan, Baoting, Diaoluoshan Exped. 2234(PE).

Polypodium podopterum Christ, Journ. Bot. (Morot) 19: 125. 1905. TYPE: Vietnam. Annam, Cadiere 148(BM, P).

Polypodium ampelideum Christ, Journ. Bot. (Morot) 19: 78. 1905; Merr., Lingnan Sci. Journ. 5: 17. 1927; C. Chr., Ind. Fil. Suppl. 144. 1934. TYPE: Vietnam. Annam, Guang Binh, Cadier 45(holotype, P; isotype, BM).

China(中国). **Guangdong**(广东): Maoming(茂名), L. Teng 2341(IBSC, KUN, PE); Yangchun(阳春), N. Liu *et al*. 1512(IBSC); Yangjiang(阳江), C. Wang 41894 (IBSC, KUN); Yunan(郁南), N. Liu *et al*. 2712(IBSC); Zhuhai(珠海), Guangdong

Exped. 2970(IBSC). **Guangxi**(广西): Bobai(博白), S. Q. Zhong A63587(IBSC, PE); Cangwu(苍梧), S. Q. Chen 10013(KUN, PE); Cenxi(岑溪), H. Y. Huang 192(GXMI); Longzhou(龙州), Y. Wan 21616(GXMI); Luocheng(罗城), Beijing Exped. 895889(PE); Mengshan(蒙山), Mengshan Exped. 7-126(GXMI); Napo(那坡), H. G. Zhou 2034(GXAU); Ningming(宁明), H. G. Zhou 3693(GXAU); Rongxian(容县), Z. Y. Wei 40271(KUN); Sanjiang(三江), H. G. Zhou 1804(GXAU); Yulin(玉林), H. G. Zhou 3434(GXAU). **Guizhou**(贵州): Pingtang(平塘), H. Y. Hou 1850(PE); Liping(黎平), QianDong Exped. 75279(PE, WPS). **Hainan**(海南): Baisha(白沙), Hainan Exped. 964(IBSC, PE); Baoting(保亭), Diaoluoshan Exped. 2234(PE); Changjiang(昌江), S. K. Lau 1906(PE); Danzhou(儋州), W. T. Tsang 275(PE); Dongfang(东方), S. H. Chun 11347(IBSC); Jianfengling(尖峰岭), S. K. Lau 5513(PE); Ledong(乐东), W. Hainan Exped. 214(IBSC, KUN, PE, SZ); Lingao(临高), W. T. Tsang 256(PE); Lingshui(陵水), L. Teng 2935(PE); Qionghai(琼海), E. Hainan Exped. 218(IBSC, KUN, PE, SZ); Qiongzhong(琼中), Tsang et Fung 263(PE); Sanya(三亚), 236-6 Exped. 1603 (PE); Tongzha(通什), N. K. Chun 43508(IBSC, PE); Tunchang(屯昌), G. Y. Fu 4144 (IBSC); Wanning(万宁), Z. X. Li *et al*. 4970(IBSC); Wenchang(文昌), C. L. Tso et N. K. Chun 43508(PE). **Chongqing**(重庆): Y. L. Shu *et al*. 683(PE). **Yunnan**(云南): Hekou(河口), S. K. Wu 4055(KUN, PE); Malipo(麻栗坡), C. W. Wang 86458(KUN, PE); Pingbian(屏边), K. M. Feng 4680(KUN, PE).

Vietnam(越南): Cardier 45(PE); Sino-Vietnam Exped. 958(KUN, PE), 1169 (KUN, PE), 1427(KUN), 2292(KUN, PE).

生长在海拔 50～1400 m 林下或山谷溪边潮湿地方或岩石上。模式标本采自越南。

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参 考 文 献

Bosman M T M, 1991. A Monograph of the Fern Genus *Microsorum* (Polypodiaceae). Rijksherbarium/Hortus Botanicus: Leiden University

Ching R-C, 1931. Studies in Chinese ferns Ⅳ. Bull Fan Mem Inst Biol, 2: 15～28

Ching R-C, 1933. Studies in Chinese ferns Ⅹ. Bull Fan Mem Inst Biol, 4: 293～362

Ching R-C, 1949. The Studies of Chinese ferns ⅩⅩⅩⅤ. Bull Fan Mem Inst Biol new ser. 1(3): 284～285

Ching R-C(秦仁昌), 1978. The Chinese fern Families and Genera: Systematic arrangement and historical origin., Acta Phytotax Sin(植物分类学报), 16(3): 1～19

Ching R-C(秦仁昌), Wang C-H(王铸豪), 1959. Materials for the pteridophytic flora of Hainan. Acta Phytotax Sin(植物分类学报), 8(2): 155～156

Copeland E B, 1947. Genera Filicum. Waltham Mass: Chronica Botanica Co

Fu S H, 1957. Illustrations of Important Chinese Plant: Pteriophytes. Beijing: Science Press
Hennipmen E, P Vedhoen, Kramer K U, 1990. Polypodiaceae. In: K. Kubitzki. The Families and Genera of Vascular Plant. Berlin: Springer-Verlag. Ⅰ: 218～219
Hetterscheid W L A, Hennipman E, 1984. Venation patterns, characteristics and shape of the fronds of the microsorioid Polypodiaceae. Bot Jahrb Syst, 105: 11～47
Ito H, 1935. Nuntia ad Filices Japoniea Ⅲ. Journ Jap Bot, 11(1): 88～100
Nooteboom H P, 1997. The microsorioid ferns. Blume, 42(2): 261～395
Shi L, Zhang X-C, 1999. Studies of the morphology of *Colysis* C. Presl(Polypodiaceae) in China. India Fern J(in press)
Tardieu-Blot, Christensen C, 1941. Polypodioidees in Lecomte H. Florae Generale L'Indo-Chine. 7(2): 499～502
Tagawa M, 1980. Coloured Illustrations of the Japanese Pteridophyta. Japan. Osaka: Hoikusha Publishing Co., Ltd. 161～163
Tagawa M, Iwatsuki K, 1989. Pteridophytes. Polypodiaceae. In: Smitinand T, Larsen K. Flora of Thailand 3(4): 536～541
Tryon A F, Lugardon B, 1991. Spores of Pteridophyta, Surface, Wall Structure and Diversity Based on Electron Microscope Studies. New York: Springer-Verlag
Tu V G, 1981. Conspectus Families of the Polypodiaceae Bercht. et J. Presl. Vietnamese Fl. in Novosti Sist Vyssh Rast, 18: 35～37
Wu S-H(吴兆洪), Ching R-C(秦仁昌), 1991. Fern Families and Genera of China. Beijing: Science Press
Zhou H-G(周厚高), Li H(黎桦), 1993. Two new species of *Colysis* from Guangxi. Acta Bot Yunnan(云南植物研究), 15(3): 253～255
Zhu W-M(朱维明), 1979. Taxa nova pteridophytorum Yunnanicorum I. Acta Bot Yunnan(云南植物研究), 1(2): 93～95

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